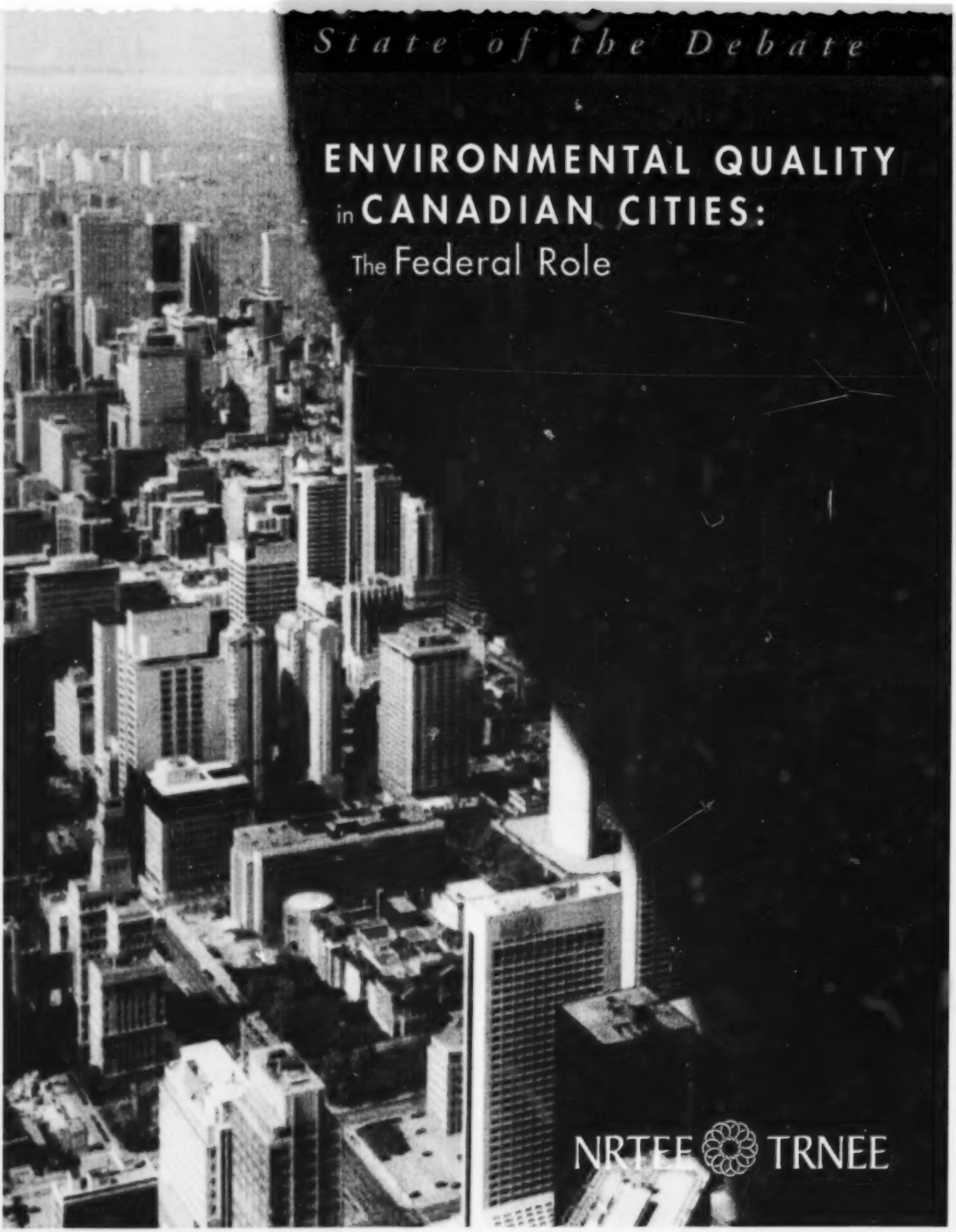
State of the Debate

ENVIRONMENTAL QUALITY in CANADIAN CITIES: The Federal Role



NRTEE TRNEE

Mandate

THE National Round Table on the Environment and the Economy (NRTEE) was created to "play the role of catalyst in identifying, explaining and promoting, in all sectors of Canadian society and in all regions of Canada, principles and practices of sustainable development." Specifically, the agency identifies issues that have both environmental and economic implications, explores these implications, and attempts to identify actions that will balance economic prosperity with environmental preservation.

At the heart of the NRTEE's work is a commitment to improve the quality of economic and environmental policy development by providing decision makers with the information they need to make reasoned choices on a sustainable future for Canada. The agency seeks to carry out its mandate by:

- advising decision makers and opinion leaders on the best way to integrate environmental and economic considerations into decision making;
- actively seeking input from stakeholders with a vested interest in any particular issue and providing a neutral meeting ground where they can work to resolve issues and overcome barriers to sustainable development;
- analysing environmental and economic facts to identify changes that will enhance sustainability in Canada; and
- using the products of research, analysis and national consultation to come to a conclusion on the state of the debate on the environment and the economy.

The NRTEE's state of the debate reports synthesize the results of stakeholder consultations on potential opportunities for sustainable development. They summarize the extent of consensus and reasons for disagreement, review the consequences of action or inaction, and recommend steps specific stakeholders can take to promote sustainability.

NRTEE TRNEE

Achieving a Balance *Atteindre un équilibre*

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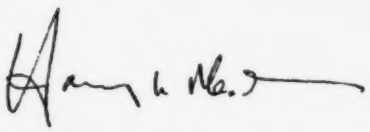
Foreword

AS rapid urbanization occurs worldwide and the global economy shifts toward the clustering of knowledge-based industries and enterprises, a nation's competitive advantage is often directly related to the performance of its cities. Furthermore, the quality of life in cities is becoming a prime determinant of investment decisions and, hence, the attraction of knowledge workers.

The National Round Table on the Environment and the Economy (NRTEE) established the Urban Sustainability Program to catalyze momentum toward alternative, more coherent strategies aimed at improving the quality of life in and competitiveness of Canada's cities or urban regions. More specifically, a task force undertook a range of ground-breaking research and multistakeholder consultations in order to determine a continued and expanded role for the federal government in urban environmental issues, through the use of more effective fiscal policy.

As Chair of the NRTEE, I am pleased to present this *State of the Debate* report, which details the program's findings and puts forth a small set of practical recommendations that support improvements to urban environmental quality. The NRTEE believes that these recommendations together provide an opportunity for the federal government to lead the way, in partnership with its provincial and municipal counterparts, toward stronger, more sustainable cities in Canada.



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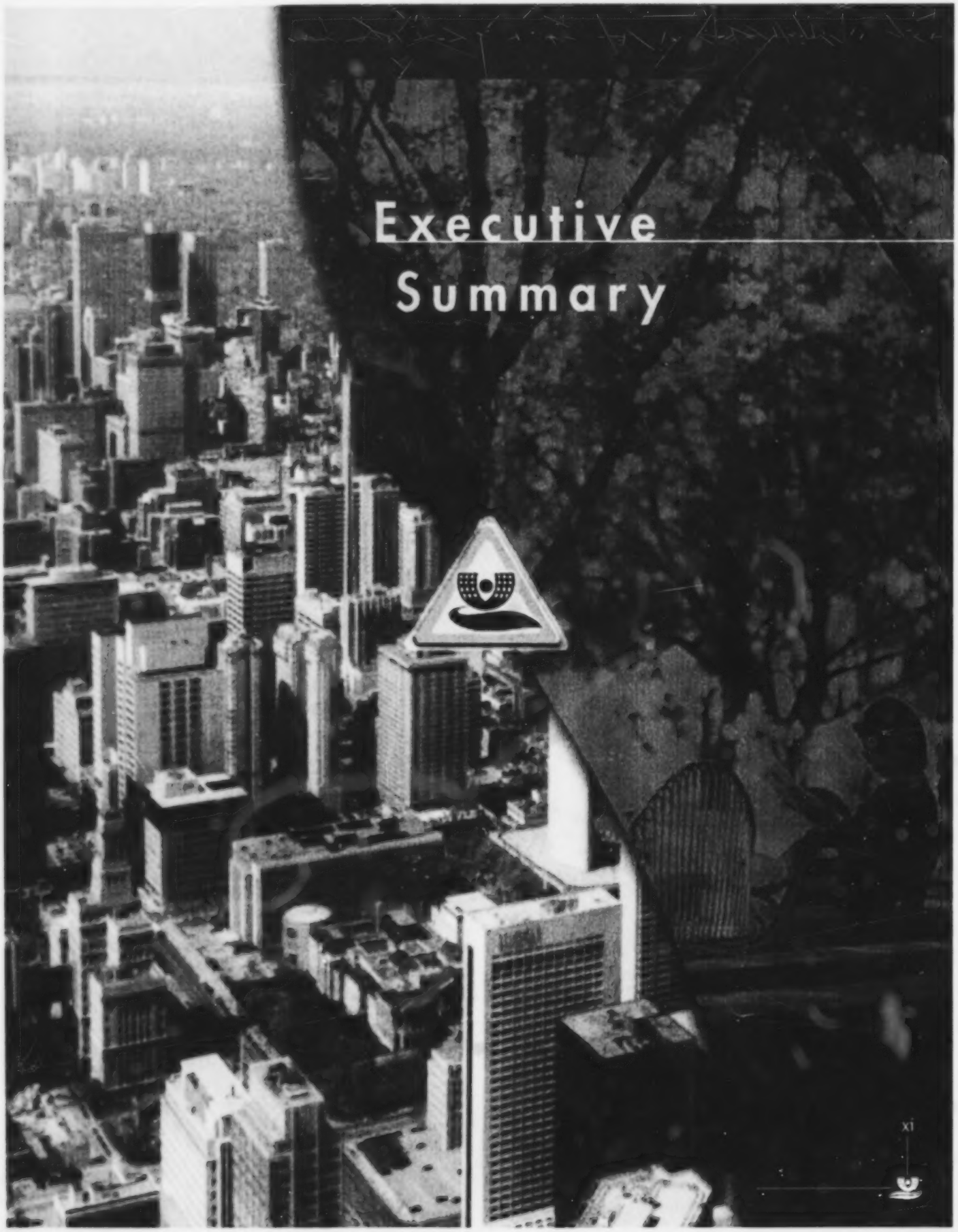
Executive Summary



"The quality of the urban environment affects more and more Canadians as they continue to concentrate in cities."

Executive Summary

This State of the Debate report addresses the emerging importance of cities, as well as their increasing environmental challenges. It is the culmination of the work of the National Round Table on the Environment and the Economy's Urban Sustainability Program. The program was launched in December 2001 primarily to identify federal fiscal policies to improve the quality of Canada's urban environments.

THE STATE OF THE URBAN ENVIRONMENT

The quality of the urban environment affects more and more Canadians as they continue to concentrate in cities. The 2001 census revealed that 80% of Canadians live in urban centres and that over half of them live in the four largest urban regions — the extended Golden Horseshoe, the Montréal region, the Lower Mainland of British Columbia and the Calgary–Edmonton corridor — where virtually all of Canada's population growth occurred in the five preceding years.[1]

Yet the recent environmental performance of Canada's cities has been patchy at best. Despite improvements in areas such as the fuel efficiency of passenger vehicles (with the notable exception of SUVs and light trucks), most key indicators suggest negative trends: the use of cars is on the rise, urban transit ridership is down and cities are using land less efficiently. Concentrations of ground-level ozone — which is linked to childhood asthma, respiratory illnesses and a range of other health issues — are also increasing.

The effects of poor urban environmental quality are also often felt beyond a city's borders. Urban centres contribute a significant amount of greenhouse gas emissions, and are therefore major players in meeting Canada's commitments under the Kyoto Protocol. Urban expansion can lead to the loss of prime agricultural land and sensitive environmental areas. And the links between urban environmental quality and a healthy knowledge-based economy are becoming more pronounced — the increasingly severe economic impacts of traffic congestion on trade, for example, or the key role urban environmental quality plays in attracting and retaining the talent that drives wealth creation.

THE ROLE OF FEDERAL FISCAL POLICY

Given these and other factors, the federal government — through initiatives such as the Prime Minister's Caucus Task Force on Urban Issues and recent speeches from the Throne — has recognized the need for a more strategic, coherent and consistent approach to urban environmental quality. Indeed, the federal government, even within its envelope of constitutional responsibilities, has an opportunity to demonstrate leadership in this area.

An approach based solely on regulation, however, is bound to fail. Although it is an effective and a preferred option for addressing many environmental issues, regulation cannot address the most quintessentially urban environmental challenges: where people choose to live (e.g., in already-urbanized centres or new suburbs that encroach on agricultural land), where businesses choose to locate (e.g., in areas well-serviced by urban transit or areas easily accessible only by car), and where and how governments decide to invest in infrastructure (e.g., whether they invest in "green" or less sustainable infrastructure). These choices are, however, highly influenced by price; fiscal policy may therefore be able to have an effect where regulation cannot.

In fact, research commissioned by the Round Table — including a comprehensive analysis of federal fiscal

policies and programs and a case study of the Greater Toronto Area—confirms earlier findings that government fiscal policies already have a significant impact on the environmental quality of Canadian cities. Fiscal policies at all levels of government shape transportation choices, location decisions and regional real estate markets. Most of this government influence is unintentional, however, and runs counter to sustainability objectives.

There is, in other words, a pronounced lack of synergy among fiscal and other policies as they relate to urban environmental quality. Also lacking are horizontal synergies within a given level of government, as well as vertical synergies among governments. The result is misdirected government resources and programs that underperform.

THE RECOMMENDATIONS

After more than a year of research and consultations, members of the Urban Sustainability Task Force — and the experts and stakeholders they consulted — concluded that urban environmental quality can be greatly improved through federal fiscal policies that address the interrelated issues of urban form[2], transportation and energy use. The Round Table has identified 11 high-priority fiscal measures, as well as five areas that warrant further exploration.

The first three high-priority recommendations call on the federal government to demonstrate leadership on urban environmental quality by taking immediate and comprehensive action to put its own house in order. Recommendations four to seven encourage the federal government to improve its collaboration with other levels of government on urban environmental issues by making more strategic investments in urban transit and municipal infrastructure. The final four high-priority recommendations set out how the federal government can encourage the private sector and individual citizens to make more efficient use of energy and land.

The five medium-term recommendations include introducing a range of additional tax measures to increase the energy efficiency of dwellings, vehicles and renewable fuels; researching the impact of freight transportation on urban environmental quality; and establishing a more coherent federal approach to urban sustainability.

The Round Table hopes that this report draws attention to and encourages more research and debate on urban environmental quality, and particularly the role of fiscal policy in improving the sustainability of Canada's cities.

Getting the federal house in order

Recommendation 1: That the federal government, through Public Works and Government Services Canada and its Good Neighbour Policy, develop and adopt comprehensive sustainable development guidelines governing the location and site design of its urban facilities.

Recommendation 2: That the federal government, through Public Works and Government Services Canada, place additional emphasis on developing and implementing transportation demand management strategies, and adopt a more ambitious, targeted approach to greening its vehicle fleet.

Recommendation 3: That the Canada Lands Company (CLC) develop a Sustainable Development Code of Practice, which would provide a clear framework for ensuring that lands managed or disposed of by CLC are developed according to principles of sustainable development. The NRTEE also recommends that CLC consider working with research organizations to monitor and evaluate the performance of CLC projects, and disseminating this information.

Supporting the use of urban transit

Recommendation 4: That the federal government invest $1 billion per year for 10 years in urban transit in Canada's cities. This investment should target growing urban regions where there are opportunities to discourage land use that doesn't support transit and to significantly increase the number of net transit riders. Federal funding should be allocated according to a basic yet effective set of criteria, such that project proponents:

a) show how the proposed transit investment fits into a comprehensive, longer-term plan to support transit ridership and, specifically, increase the share of trips taken by urban transit;

b) estimate the number of net new transit riders who will be attracted from cars as a result of the investment;

c) indicate how the attractiveness of transit will be improved relative to the automobile (e.g., traveller cost, travel times, convenience);

d) quantify investment in transit versus investment in automobile-related travel;

e) document a comprehensive approach to achieving land use patterns that will support transit ridership, including area-wide planning policies; transit node and corridor-specific land-use policies; and area-wide, transit node and corridor-specific municipal pricing policies (e.g., development charges, property taxes, user fees);

f) create a transportation demand management plan;

g) quantify the cost of the investment per net new transit rider;

h) indicate the financial contributions and roles of other partners, including provincial and municipal governments, other agencies, and the private sector;

i) document the environmental and economic benefits of the investment (e.g., reductions in greenhouse gas emissions, road infrastructure investments averted, congestion costs averted); and

j) monitor the results (e.g., actual net new transit riders, development in identified transit nodes and corridors).

Recommendation 5: That the *Income Tax Act* be amended to make employer-provided transit passes a tax-exempt benefit, given the myriad benefits associated with increasing urban transit ridership.

Promoting sustainable infrastructure

Recommendation 6: That the granting of federal infrastructure funding be subject to a practical, performance-based set of criteria that ensures funded projects make substantial contributions to improved environmental quality in a cost-effective manner. Proponents should be required to submit a Sustainable Community Investment Plan, outlining the needs to be addressed by the infrastructure investment and demonstrating:

a) how the proposed infrastructure investment fits into a comprehensive, longer-term investment plan for improving urban environmental quality;

b) how existing infrastructure capacities have been or will be fully exploited;

c) how all options for jointly addressing infrastructure needs with surrounding municipalities or other relevant entities have been explored and fully exploited;

d) a comprehensive approach to managing the demand for the infrastructure (for example, for transportation infrastructure, a transportation demand management plan is required; for water-related projects, a metering program);

e) that a range of alternative options for solving infrastructure needs—including other types of infrastructure—have been explored;

f) a life-cycle costing analysis of the proposed project and alternatives;

g) financial contributions and roles of other partners, including provincial government, municipal government, other agencies and the private sector; and

h) a quantification of the expected environmental improvements in terms of air, water or soil quality of the proposed project and the alternatives.

Recommendation 7: That the municipal GST rebate be increased from 57.14% to 100% for expenditures by municipalities and municipal agencies on infrastructure that improves urban environmental quality. Infrastructure expenditures eligible for the 100% rebate would be specified, and could include investments in:

- transit vehicles and their maintenance and repair;
- water and wastewater infrastructure;
- renewable energy infrastructure (e.g., wind power);
- community energy systems; and
- infrastructure purchased by municipalities as part of projects funded under federal–municipal infrastructure or transit investment programs.

Encouraging the efficient use of energy and land

Recommendation 8: That the federal government amend Class 43.1 of the Income Tax Regulations to make capital investments in community energy systems (including investments in generation equipment, underground pipes and thermal host systems) eligible for the accelerated capital cost allowance.

Recommendation 9: That the federal government amend the *Excise Tax Act* to rebate 36% of the GST on the cost of renovations to homes that improve their energy efficiency. This should be accompanied by a premium energy performance labelling program, such as the EnergyStar program; only the most energy-efficient products would be eligible for the GST rebate. In addition, the *Excise Tax Act* should provide a rebate of 36% of the GST paid on purchases associated with the creation of legal accessory units in existing houses.

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Recommendation 10: That an additional GST rebate of one percentage point (or 14% of the GST) be provided for new R-2000 homes, in addition to the existing 36% new housing rebate, bringing the total GST rebate to 50% for R-2000 homes. Alternatively, or concurrently, the existing 36% new housing GST rebate could be gradually redirected solely to R-2000 homes.

Recommendation 11: That the federal government, through the Canada Mortgage and Housing Corporation, conduct research on the potential contribution of eco-efficient mortgages to the more efficient use of land in Canada. If research results warrant, this would lead to a pilot project. Then, if pilot project results warrant, a wider eco-efficient mortgage program involving the financial sector would be pursued.

Areas for further exploration

Recommendation 12: That the federal government explore a number of potential fiscal measures to assess their contribution to improving environmental quality in Canada's urban centres and, if warranted, refine these measures for implementation in the next one to three years. These measures include:

- establishing an R-2000 standard and incentives for retrofits of residential buildings;
- restructuring tax on passenger vehicles to reflect emission levels;
- exploring more rigorous mechanisms to address the increasing contribution of SUVs and light trucks to energy use and emissions;
- providing tax incentives to promote demand for energy from renewable sources; and
- developing environmental performance standards for municipal infrastructure.

Recommendation 13: That the federal government undertake research on the role of freight transportation in urban environmental quality; the relationship between freight transportation and urban land use patterns; current and future trends; key drivers of related environmental outcomes; and potential fiscal, regulatory or program responses by government. This research would help fill a significant information gap relating to freight transportation, an area of growing impact on urban environmental quality.

Recommendation 14: That the federal government develop a national urban strategy that outlines its role, intentions and actions for improving the sustainability of Canada's cities. This strategy should include a comprehensive framework for using fiscal policy to improve environmental quality in Canada's cities.

Recommendation 15: That the federal government investigate the usefulness of a mechanism or mechanisms for coordinating and advocating action to improve urban sustainability across federal departments and agencies.

Recommendation 16: That the federal government, after additional research, introduce a mechanism or mechanisms to promote better alignment among federal, provincial and municipal fiscal and other policies affecting urban sustainability.

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- developing environmental performance standards for municipal infrastructure.

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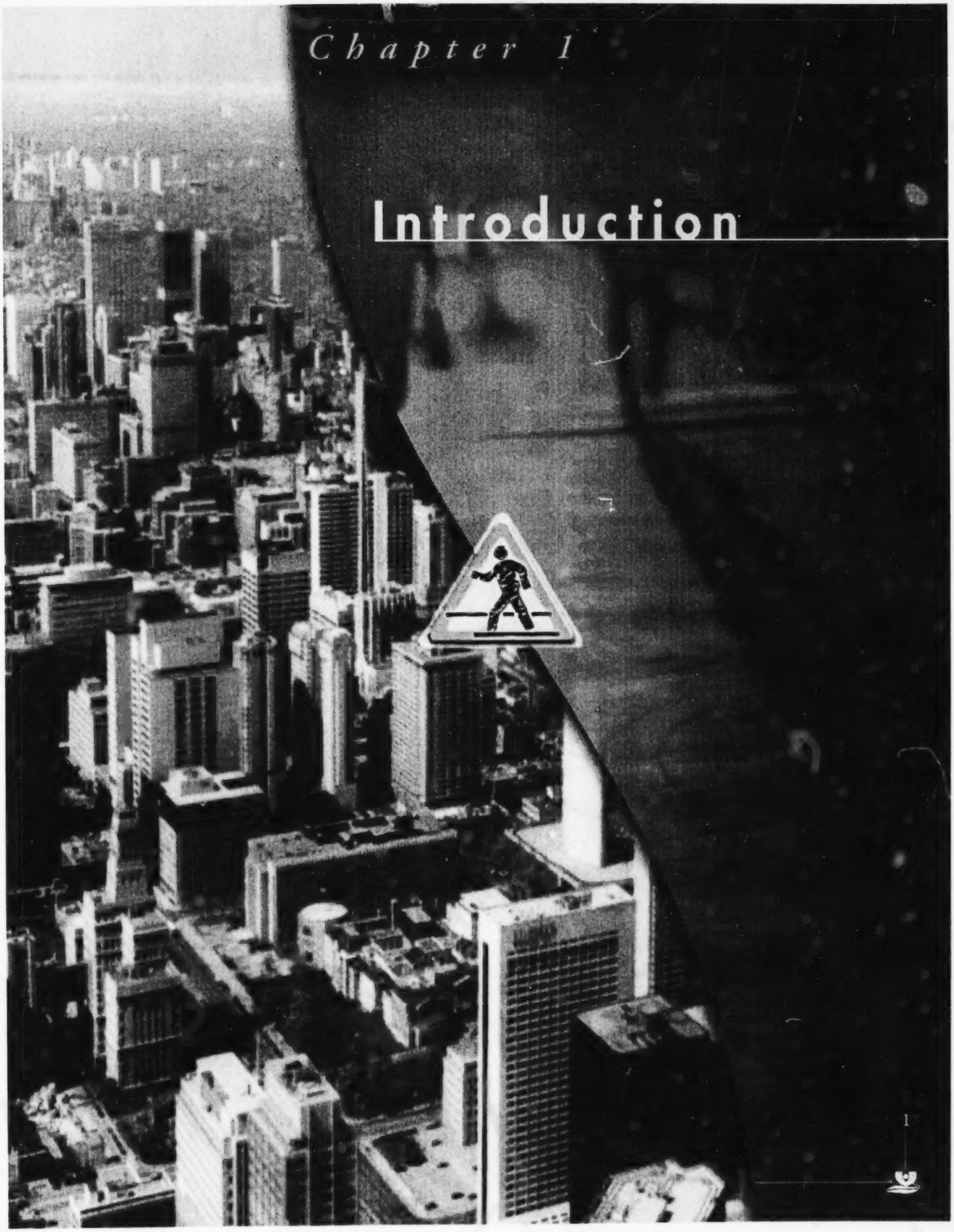
Recommendation 14: That the federal government develop a national urban strategy that outlines its role, intentions and actions for improving the sustainability of Canada's cities. This strategy should include a comprehensive framework for using fiscal policy to improve environmental quality in Canada's cities.

Recommendation 15: That the federal government investigate the usefulness of a mechanism or mechanisms for coordinating and advocating action to improve urban sustainability across federal departments and agencies.

Recommendation 16: That the federal government, after additional research, introduce a mechanism or mechanisms to promote better alignment among federal, provincial and municipal fiscal and other policies affecting urban sustainability.

Chapter 1

Introduction



"Addressing urban environmental quality can play a key role in meeting Canada's commitment under the Kyoto Protocol."

The 2001 census revealed that 80% of Canadians live in urban centres. Canada's population is not only more urban but also more metropolitan, with population and economic activity increasingly concentrated in the very largest metropolitan areas. Between 1996 and 2001, virtually all of the nation's population growth was in the four largest urban regions. The extended Golden Horseshoe, the Montréal region, the Lower Mainland of British Columbia and the Calgary–Edmonton corridor grew by 7.6% and are now home to more than half of the Canadian population. In comparison, there was virtually no growth (0.5%) in the rest of the country.[3] The increasing dominance of the largest urban regions is a phenomenon across all countries with advanced, knowledge-based economies.

THIS State of the Debate report addresses the emerging importance of cities, as well as the increasing environmental challenges that must be dealt with in urban regions.

URBAN SUSTAINABILITY AND URBAN ENVIRONMENTAL QUALITY

Defining what is meant by a "sustainable city" or "urban sustainability" is difficult. Sustainability generally incorporates the notion of preserving or enhancing the current environment for future generations. It also typically means giving equal consideration to economic, social and environmental issues.

For the purpose of its work in this area, the NRTEE defines urban sustainability as:

> *The enhanced well-being of cities or urban regions, including integrated economic, ecological and social components, which will maintain the quality of life for future generations.*

This report examines a subset of urban sustainability—environmental quality. Obviously, the ecological components of urban sustainability affect more and more Canadians, who continue to concentrate in cities. Urban environmental issues are highly interdependent; the environmental impacts of urban t ransportation, for example, are closely related to the structure and land use patterns of cities. As such, these issues are very complex and cannot be fixed solely by technology.

CITIES AND THE ENVIRONMENT

How cities are organized affects the quality of the environment both within and beyond their borders. Where people live and work, how they get there, the kind of work they do, the types of municipal infrastructure, the way in which cities grow and change, and the management of municipal services each have a significant impact. Although cities can offer efficiencies and reduced environmental impacts per capita — for example, because of transit or opportunities to walk to work, because of denser and more energy-efficient housing forms — their aggregate environmental impact is nonetheless significant.

Improving the quality of the environment in Canadian cities will not only enrich the quality of life and health of the vast majority of city residents, but

also significantly contribute to the amelioration of global environmental problems such as climate change. Urban transportation and residential, commercial and industrial buildings (the majority of which are located in cities) contribute significantly to energy use and greenhouse gas (GHG) emissions. Transportation in particular contributes disproportionately to GHG emissions because of its greater reliance on fossil fuels. Energy use for both transportation and buildings is inextricably linked to the structure and development patterns of cities. Indeed, urban form, urban transportation and energy use in urban buildings form a nexus at the heart of urban environmental quality. The recommendations in this report will therefore focus on this set of issues.

In Montréal, for each household choosing to reside near the Metro instead of on the periphery of the metropolitan region, there are each year:

- *1050 fewer automobile trips;*
- *15 000 fewer kilometres travelled by car;*
- *6000 fewer kilograms of greenhouse gases;*
- *625 more transit trips; and*
- *425 more trips on foot or by bicycle.*

Quebec Ministère des Affaires municipales et de la Métropole, Planning Framework and Government Orientations, Montréal Metropolitan Region 2001–2021, June 2001.

Addressing urban environmental quality can play a key role in meeting Canada's commitment under the Kyoto Protocol: a 240-megatonne (MT) reduction in GHG production by 2012. Indeed, the federal government's *Climate Change Plan for Canada*[4] identifies several measures related to urban transportation and building energy use:

- increased use of urban transit, alternative approaches to passenger transportation and sustainable urban planning (estimated to reduce GHG emissions by 7 MT);
- demonstration of integrated strategies, technologies and planning to reduce urban transportation emissions (0.8 MT);
- energy efficiency improvements to existing buildings (1.2 MT);
- energy efficiency evaluations for homeowners (0.7 MT);
- energy efficiency improvements to federal buildings (0.2 MT); and
- a target of R-2000 energy efficiency for all new housing by 2010 (0.7 MT).

In addition, improving urban environmental quality can reduce air pollution, which is linked to a variety of health problems such as asthma and respiratory illnesses. These illnesses impose direct costs on the health care system, as well as broader costs in the form of lost work-days and reduced productivity.[5]

URBAN ENVIRONMENTAL QUALITY AND THE ECONOMY

The links between urban environmental quality and the economy are only starting to be recognized and understood. There do seem to be connections, however, between urban environmental quality and the health of a knowledge-based economy.

According to leading economist Richard Florida, urban environmental quality is important to attracting and retaining the "talent" that drives wealth creation in knowledge-based economies.[6] His research attempts to define the specific attributes of a city that attract this skilled labour. Key attributes include environmental quality; natural amenities; recreational amenities; lifestyle amenities; progressive, youth-oriented regions; and cultural diversity.

Skilled workers look for communities with a concerted approach to sustainable development that includes specific attributes such as user-friendly transit; commuter bike lanes; a clean, healthy environment; and a commitment to preserving natural resources for enjoyment and recreation.

Urban environmental quality is also linked to innovation and trade. Environmentally friendly technologies, processes and approaches developed in Canada can be exported to other markets. At the same time, rising levels of traffic congestion in many Canadian cities can result in high costs to businesses and impede trade, particularly in the Greater Toronto Area and Vancouver, where such congestion can slow traffic on major international trade routes.

Moreover, increasing uncertainties related to the environment, such as threats related to climate change, greater incidence of extreme weather events, environmental catastrophes or spills can discourage long-term capital investment.

CANADA'S URBAN AGENDA

It is ironic that just as the important role sustainable cities play in economic performance and wealth creation is being acknowledged, their ability to improve urban environmental quality is being systematically compromised.

The provinces have downloaded responsibilities for urban transit, housing and welfare onto municipal governments without providing them with new fiscal tools to effectively address these matters. Still heavily reliant on property tax bases, cities have been unable to meet these new fiscal challenges and maintain the levels of investment and reinvestment needed to sustain urban environmental quality. For example, since 1992, federal revenues collected from the City of Toronto grew by an estimated 54% and provincial revenues by an estimated 40%. During the same period, municipal property tax revenue rose by only 19%.[7]

In *Early Warning: Will Canadian Cities Compete?*[8] (a report commissioned by the Round Table), the Federation of Canadian Municipalities (FCM) highlights the financial stresses faced by Canadian cities, stresses that could ultimately undermine both urban environmental quality and national economic growth.

To date, responses to these issues have been piecemeal and therefore ineffective. Beyond their push for constitutional change (including increased legislative and fiscal authorities), municipalities have tended to approach the federal government and provincial governments "cap in hand," and only issue by issue. Provincial governments and the federal government have responded with one-off solutions that do not address the more fundamental problems or recognize the need for a more strategic, comprehensive approach to Canada's urban issues.

THE FEDERAL GOVERNMENT AND CITIES

Issues of urban environmental quality typically transcend municipal boundaries, and are therefore of concern to all Canadians, not just the 80% that live in cities. Does this mean that the federal government should take on more responsibility for urban environmental quality? As the country's largest landlord and employer, the federal government already has a significant impact on urban sustainability. The quality of the environment in Canada's cities is also affected by many federal policies and programs, from immigration policies and innovation strategies to taxation policies, the government's redistribution of income and, more recently, municipal infrastructure funds.

However, because the federal government lacks an urban focus or "lens," its impact on the nation's cities is often unintended. The need for an urban lens for federal programs and policies, as well as a national urban strategy, was the centrepiece of the final report of the Prime Minister's Caucus Task Force on Urban Issues, chaired by Member of Parliament Judy Sgro (the "Sgro" report).[9] Recent speeches from the Throne have also acknowledged the importance of reinvesting in Canada's cities. Even within its constitutional responsibilities, the federal government could demonstrate leadership by adopting a more strategic, coherent and coordinated approach to urban environmental quality.

A ROLE FOR FISCAL POLICY IN IMPROVING URBAN ENVIRONMENTAL QUALITY

Fiscal policy — tax policy, other incentives and disincentives, and program spending — is the concrete manifestation of a government's priorities. If the federal government intends to make the sustainability of Canada's cities a priority, its fiscal policy must re-examined.

Carefully crafted fiscal policy is particularly important when it comes to investing in cities. Urban infrastructure, for instance, is expensive, tends to have a long life and can influence how and where cities grow. While poorly conceived spending in other areas may just be money "wasted," misguided investments in cities can lead to prematurely redundant infrastructure, longer-term problems with expensive solutions and unsustainable development patterns.

There is no doubt that regulation has often been an effective and preferred option in supporting improvements to urban environmental quality. Emissions controls, for example, have increased the fuel efficiency of passenger vehicles (with the notable exception of SUVs and light trucks). Similar improvements have resulted from a wide range of government programs, research, educational campaigns and voluntary initiatives.

Energy use for transport is primarily influenced by how much people travel, which in turn is inextricably linked to urban form. How much people travel cannot be regulated. But urban form and travel patterns can be influenced by pricing, and ecological fiscal reform can play a key role in this regard.

In some cases, however, regulation and government programs are simply not enough.[10] In fact, many of the most quintessential urban environmental issues do not at all lend themselves to regulation. Transportation, for example, remains a large and fast-growing end-use contributor to GHG emissions, even though other sectors have demonstrated relative or absolute declines in energy use. Emissions from transportation are primarily influenced by how much people travel — something that cannot be regulated.

Where people choose to live (in the city core, existing suburbs or new greenfield suburbs), the types of buildings they live in, where businesspeople choose to locate their businesses, and where and how municipalities choose to invest in infrastructure — these decisions all have a significant impact on urban environmental quality, but do not lend themselves to regulation. They are all highly influenced by price, however, which indicates that fiscal policy may have an effect where regulation cannot.

In fact, current fiscal policy is by no means neutral when it come to urban sustainability. Government fiscal policies at all levels already influence transportation choices, location decisions and regional real estate markets — but this influence is almost always unintended and usually runs counter to sustainability objectives. Urban planning is a regulatory approach used in part to address urban sustainability through provincial policies and regional and local official plans that adopt sustainability principles. Yet planning has failed to achieve significant results on the ground in the form of more sustainable transportation systems, travel patterns and urban development patterns.[11] One important yet commonly overlooked cause of this failure is the inadvertent undermining of urban planning by the fiscal policies of all three levels of government.

Government fiscal policies already act on regional real estate markets, creating a range of influences and distortions. The problem is these influences and distortions are almost always unintended. Moreover, the effect is almost always counter to stated sustainability objectives.

It is only now that these complex interrelationships are being recognized and understood. Until now, there has been little focus on how fiscal policies at all levels of government affect urban environmental quality and broader environmental issues such as GHG production and global warming. The challenge is to fashion fiscal policies that will achieve objectives and encourage synergies at all levels of government.

THE ROUND TABLE APPROACH

In January 2001, the National Round Table on the Environment and the Economy released its Millennium Statement—*Achieving a Balance: Four Challenges for Canada in the Next Decade*.[12] One of the statement's key challenges is the management of urban spaces to create healthier environments. This challenge led to the launch of the Urban Sustainability Program in December 2001.

The Urban Sustainability Program built on both past and current work at the Round Table, including:

- the Sustainable Cities Initiative, conceived by the NRTEE and now spearheaded by Industry Canada;
- the recently announced National Brownfield Redevelopment Strategy, which includes recommendations for investments, liability and capacity-building; and
- the Ecological Fiscal Reform (EFR) Program, which aims to explore how fiscal policy can be reshaped to encourage the achievement of both environmental and economic objectives.[13]

The overall goal of the Urban Sustainability Program was to catalyze momentum toward alternative or more coherent strategies, based on sustainable development principles, to improve the quality of life in and competitiveness of Canada's cities or urban regions. The NRTEE sought to fill an important gap in the current array of approaches by helping to determine a clearer role for the federal government in urban issues. As such, it focused primarily on identifying a small set of specific fiscal policies for improving urban environmental quality.

To achieve its objectives, the NRTEE convened the Urban Sustainability Task Force, which undertook a range of research and consultations that informed the material presented in this State of the Debate report. These included:

- an inventory of federal fiscal programs and policies that affect urban environmental quality — the "horizontal" analysis;
- a case study examining the interaction among federal, provincial and municipal fiscal programs and policies and their impact on urban environmental quality — the "vertical" analysis;
- two meetings of experts to review a long list of possible new fiscal measures in support of improved urban environmental quality; and
- a multistakeholder workshop to review a short list of priority fiscal measures.

By definition, "urban environmental quality" is a broad and all-encompassing set of issues. In its work, the Task Force was selective. It did not attempt to address all environmental issues that affect cities, but focused on key clusters of issues dependent on or shaped by their urban context (industrial emissions, for example, were excluded). It also focused on issues dependent on or shaped by fiscal policy (most issues relating to water were examined only with respect to their links to urban form). Finally, the Task Force excluded the important issue of brownfields remediation, as it was already being addressed in the NRTEE's National Brownfield Redevelopment Strategy.

WATER

Although not closely examined by the Urban Sustainability Task Force, water is significantly affected by urban environmental quality. The amount of land urbanized and the patterns of urban development, as well as pollution treatment (or more precisely, inadequate or non-existent treatment in some Canadian cities), have an impact on the pollution of water bodies and groundwater, the protection of drinking water sources, levels of water consumption, and the disruption of natural drainage patterns and watercourses. Despite its focus on urban form, transportation and energy use, the Task Force did address water and wastewater through its recommendations pertaining to infrastructure (e.g., municipal investments in water and wastewater infrastructure would be eligible for a 100% GST rebate.

As such, the broad issue was broken down into 13 dimensions, which elaborate on the factors or drivers that shape urban environmental quality:

1. Development on undeveloped versus already urbanized land
2. Loss of agricultural and environmentally sensitive lands at the urban fringe
3. Amount of land and building consumed (density of development)
4. New construction versus rehabilitation of buildings
5. Parking—availability and land use
6. Energy conservation and efficiency
7. Use of environmentally detrimental versus benign energy sources, as well as non-renewable energy versus renewable energy
8. Travel demand
9. Use of the automobile versus more energy-efficient and less polluting forms of transportation
10. Fuel efficiency of vehicles
11. Energy efficiency of freight transportation
12. Traffic congestion
13. Treatment of sewage waste

Three other dimensions that cut across several environmental issues were also explored:

1. General programs and impacts
2. Federal infrastructure programs and criteria
3. Interdepartmental coordination around investment in cities and sustainability

These 16 dimensions were used to guide program research and consultations.

This State of the Debate report does not attempt to provide a comprehensive fiscal strategy related to improving urban environmental quality. Rather, it aims to identify and define the potential for fiscal policy to improve urban environmental quality, and to suggest some practical steps the federal government can start with.

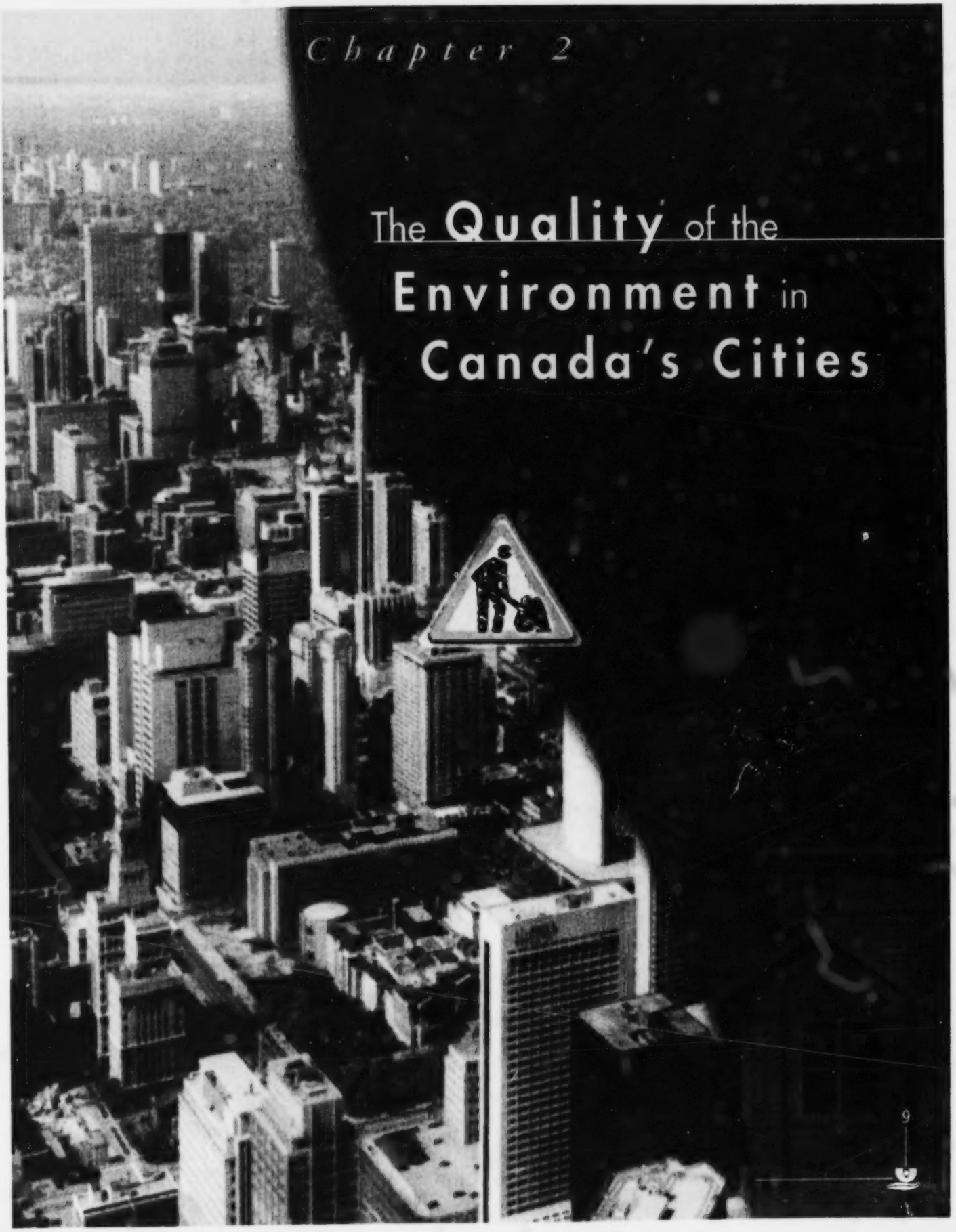
This report reflects the views of the Urban Sustainability Task Force and the NRTEE. It focuses primarily on recommendations and includes some discussion of issues that did not achieve full consensus. It is hoped that the report captures the innovative work of the Round Table, and acts as a catalyst in sparking further research, debate and — most importantly — concrete action.

OUTLINE OF THE REPORT

The recent environmental performance of Canada's cities is addressed in Section 2 of this report. Section 3 explores the relationship between energy use and urban environmental quality; Section 4 looks at current fiscal policies of the federal, provincial and local governments. Section 5 outlines the NRTEE's high-priority recommendations and Section 6 sets out areas for further exploration. A glossary of terms used throughout the document is provided in Annex A.

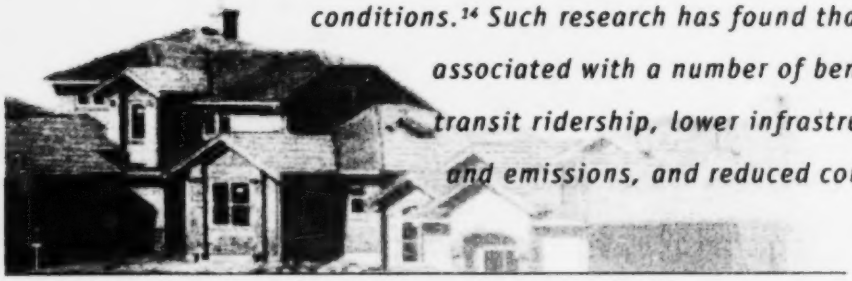
Chapter 2

The Quality of the Environment in Canada's Cities



"Compact urban form is usually associated with a number of benefits."

This report suggests implicitly that compact urban form is more environmentally sustainable than urban growth patterns often found in North America, namely, suburbanization or "sprawl." The Urban Sustainability Task Force supported this premise, as it accepted the preponderance of evidence from research that has been conducted in the context of a wide variety of urban conditions.[14] Such research has found that compact urban form is usually associated with a number of benefits, including higher levels of transit ridership, lower infrastructure costs, reduced energy use and emissions, and reduced consumption of agricultural lands.



THE NRTEE also recognizes a current, lively debate that prevails around the issue of sprawl.[15] What truly causes sprawl — consumer preferences, pricing of land and housing, subsidies, and/or advanced telecommunications? And, what are the specific effects of urban form, for example, on the amount of automobile travel, congestion and air pollution, and infrastructure costs?

Either way, many North Americans continue to gravitate toward living in the suburbs. With increasing distance from the city core, development typically becomes less expensive; larger lots and larger houses become more affordable. Over time, these market forces often lend themselves to sprawl.

However, as research undertaken for the Task Force shows, these market forces are by no means pure and unfettered. They are currently affected and altered by a complex web of direct and indirect subsidies and cross-subsidies stemming from local, provincial and federal fiscal policies. These fiscal policies ultimately affect the market prices of different types of development in different urban locations. It is this market distortion that provided much of the rationale for the Task Force's focus on the issues of urban form, transportation and energy use.

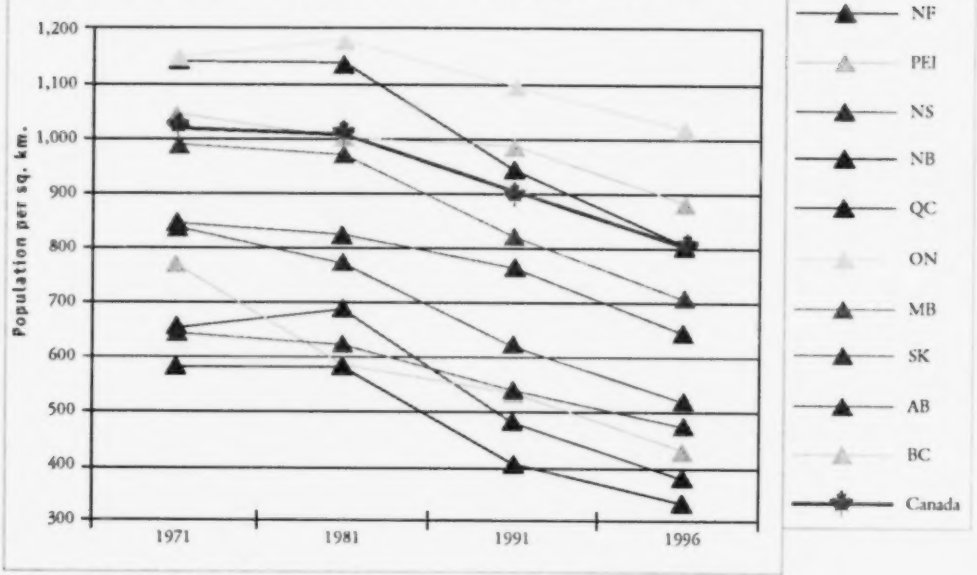
With this premise in mind, the Task Force attempted to gauge whether the quality of the environment in Canada's urban centres is improving or declining. The Task Force examined several indicators of urban environmental quality: population density, growth in urbanized land, transit ridership, travel by car and concentrations of some common air pollutants.

Urban centres with a high **population density** (the number of persons per square kilometre of urbanized land) make more efficient use of land than those with lower densities, and are likely better able to support transit services. Higher-density cities are also usually cheaper to service and consume less land at the urban fringe. As cities expand — particularly low-density cities with low levels of redevelopment in already-urbanized areas — they can take over prime agricultural land, environmentally sensitive land and rural landscapes, and they can disrupt natural habitats.

There has been a marked decline in urban population densities across Canada, particularly since 1981 (Figure 1).

FIGURE 1

URBAN POPULATION DENSITY BY PROVINCE, 1971–1996



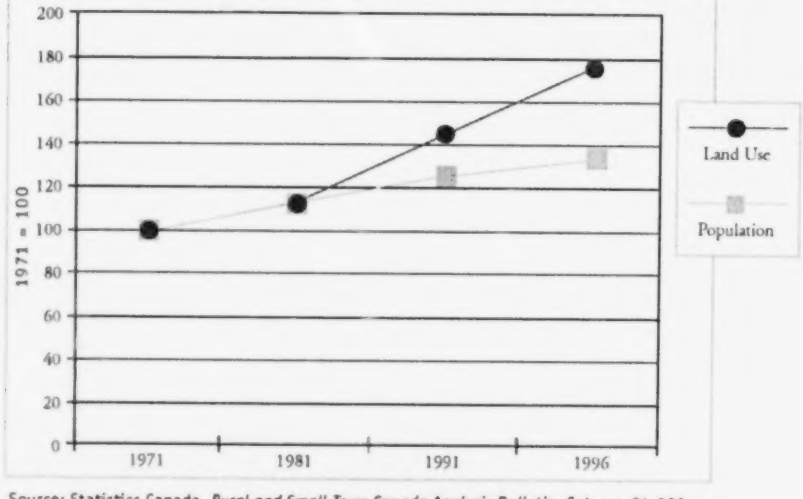
Source: Statistics Canada: *Econnections: Linking the Environment and the Economy—Indicators and Detailed Statistics*. Cat. no.16-200-XKE, Canada, 2000.

Starting in 1981, rates of **growth in urbanized land** began to outstrip population growth, and the margin continues to widen (Figure 2). Many use this trend—where rates of urbanization of land outstrip population growth—as the definition of urban sprawl.

In all, the amount of urbanized land area increased by 12 140 square kilometres (km^2) between 1971 and 1996, from almost 16 000 km2 to 28 000 km^2.

FIGURE 2

TOTAL URBANIZED LAND AREA, CANADA, 1971–1996



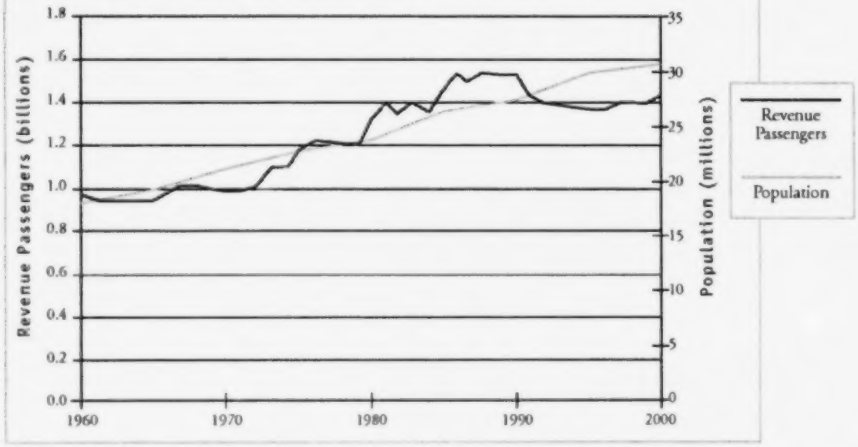
Source: Statistics Canada, *Rural and Small Town Canada Analysis Bulletin*, Cat. no. 21-006-XIE, September 2001; and Statistics Canada, *CANSIM II Series v1*, table 510005.

As discussed in detail below, transit is a more environmentally sustainable form of urban transportation than the automobile. Although total **transit ridership** in Canada has been growing steadily since 1960, the average number of transit rides per person has been falling (Figure 3). Most importantly, there has been a marked downturn in both total and per-person transit ridership since around 1990.

In comparison, total **travel by car** (including light trucks and SUVs) has been growing very quickly, significantly outpacing population growth (Figure 4). Given its reliance on fossil fuels, travel by car has serious environmental consequences for both local air pollution and GHG production.

FIGURE 3

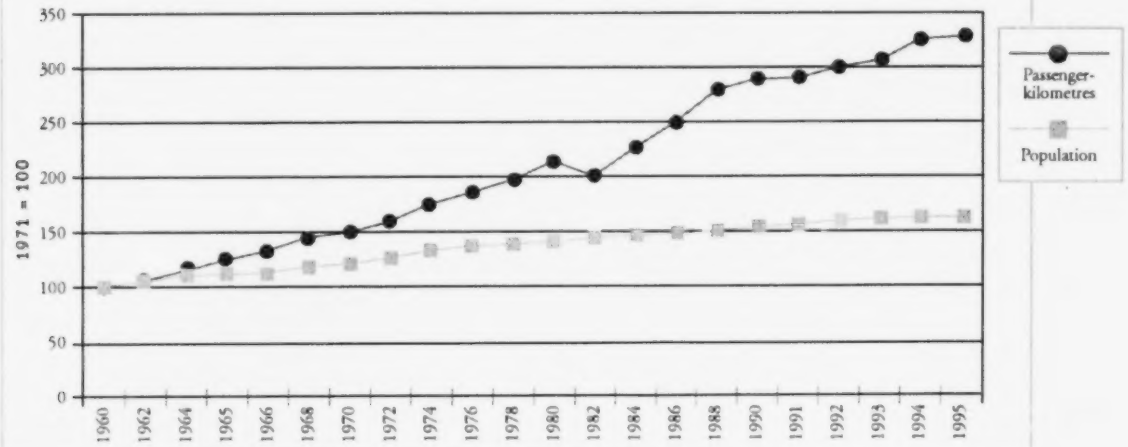
URBAN TRANSIT RIDERSHIP AND POPULATION GROWTH, CANADA, 1960–2000



Source: Centre for Sustainable Transportation, *Sustainable Transportation Indicators, Report on Phase 3*, September 2002 (data from the Canadian Urban Transportation Association and Statistics Canada), p. 53.

FIGURE 4

TOTAL PASSENGER-KILOMETRES TRAVELLED AND POPULATION GROWTH, CANADA, 1960–1995



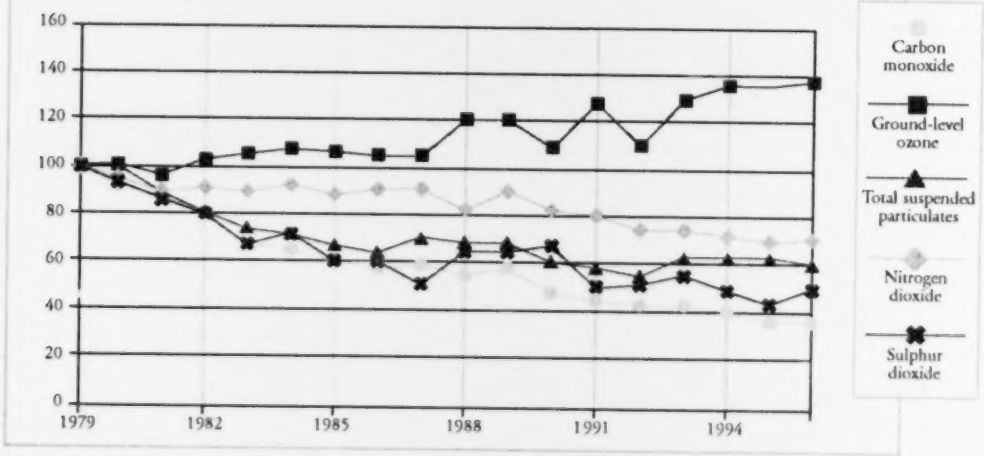
Note: Vehicles included are automobiles, SUVs and light trucks. Source: Environment Canada, *Canadian Passenger Transportation, SOE Technical Supplement No. 98-5: How Canadians Travel*, Figure 3; and Statistics Canada, *CANSIM II Series v1*, table 510005.

Largely because of the regulation of automobile emissions, as well as better regulation of industrial emissions, **concentrations of some common air pollutants** have been falling (Figure 5). One notable exception is ground-level ozone or summer smog, formed when nitrogen oxides and volatile organic compounds (emitted from transport sources) combine in sunlight. Ground-level ozone is related to the rising incidence of smog advisory days in many of Canada's urban centres.

Although some urban environmental indicators show improvement, key indicators related to car use, transit ridership and urbanization patterns show negative trends, reinforcing the need to make substantial improvements to urban environmental quality by addressing the central and related issues of urban form, transportation and energy use.

FIGURE 5

CONCENTRATIONS OF COMMON AIR POLLUTANTS, CANADA, 1979–1996

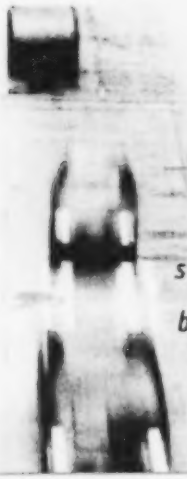


Source: Centre for Sustainable Transportation, *Sustainable Transportation Indicators, Report on Phase 3*, September 2002 (data from Environment Canada), p. 35.

Chapter 3

Energy Use and Urban Environmental Quality

"Energy use has the most significant impact on environmental quality both within and beyond a city's borders."

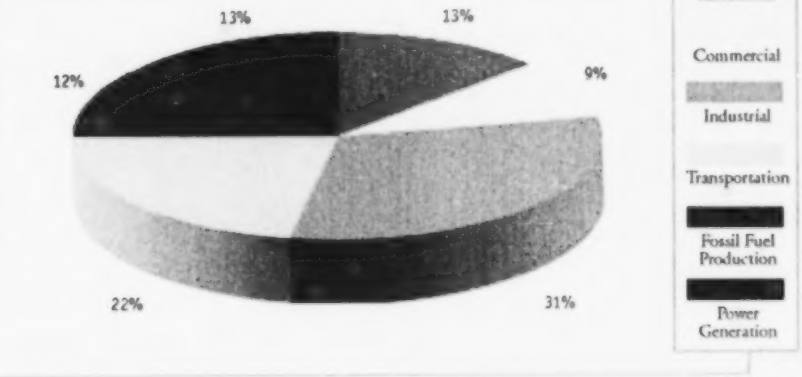


Energy use—particularly the use of energy from fossil fuels—has the most significant impact on environmental quality both within and beyond a city's borders. It can deplete non-renewable resources and produce emissions that contribute to smog and other local environmental problems, as well as global environmental problems such as climate change.

Figure 6 presents primary energy use by sector, while Figure 7 shows corresponding shares of GHG emissions. Primary energy use shown in Figure 6 amounts to 11 105 petajoules; GHG emissions shown in Figure 7 total 592 MT.

FIGURE 6

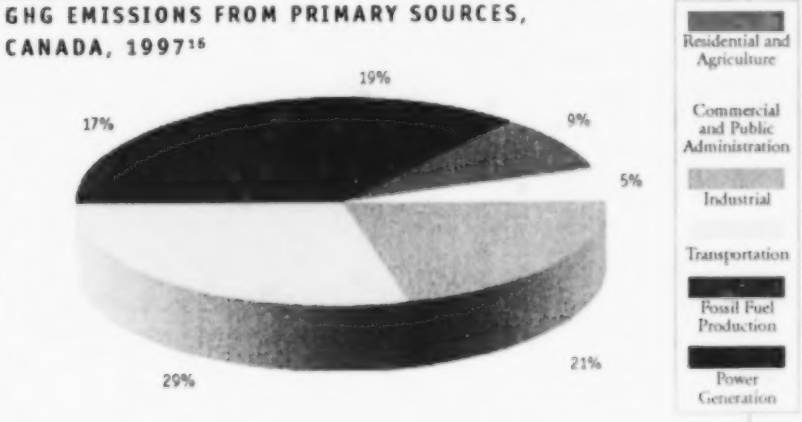
PRIMARY ENERGY USE BY SECTOR, CANADA, 1997



Source: Natural Resources Canada, *Canada's Emissions Outlook– An Update*, 1999, Annex C, Table 8.

FIGURE 7

GHG EMISSIONS FROM PRIMARY SOURCES, CANADA, 1997[16]



Source: Natural Resources Canada, *Canada's Emissions Outlook–An Update*, 1999, Annex C, Table 25.

The production of energy ("fossil fuel production" and "power generation") consumes a significant amount of energy—one-quarter of all energy used—and produces more than one third of GHG emissions. Because there is little or no data to indicate what share of energy is produced in cities, point-source emissions from energy production are not considered to be a characteristically urban environmental issue, and therefore don't fall within the scope of the Task Force's work. These emissions can be reduced, however, through the adoption of more sustainable forms of energy production suited to an urban environment, such as community energy systems.

Industrial use (including both building-related energy uses and energy used for industrial processes) accounts for the largest share of energy use. Energy use and emissions associated with industrial processes are also not considered for the Task Force's purposes to be characteristically urban environmental issues.

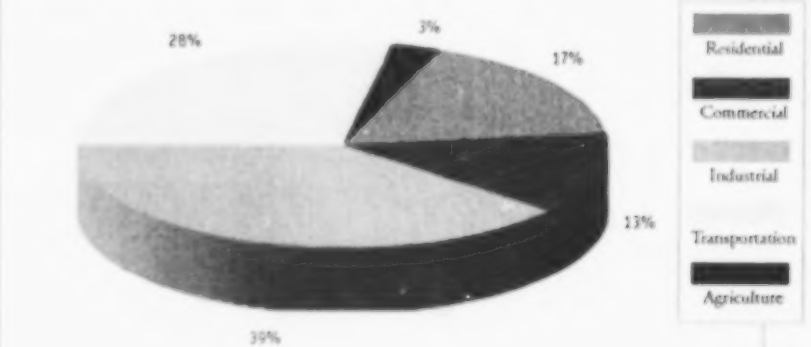
Transportation is the next most significant sector, accounting for 22% of primary energy use and 29% of GHG emissions.

The residential and commercial sectors (the latter includes offices and institutions) account for 13% and 9% respectively of energy use, and 9% and 5% respectively of GHG emissions.

Energy use broken down by end-use—that is, excluding the production of energy—is shown in Figure 8; Figure 9 shows the corresponding shares of GHG emissions. Total energy use shown in Figure 8 amounts to 8164 petajoules and emissions shown in Figure 9 total 473 MT.

FIGURE 8

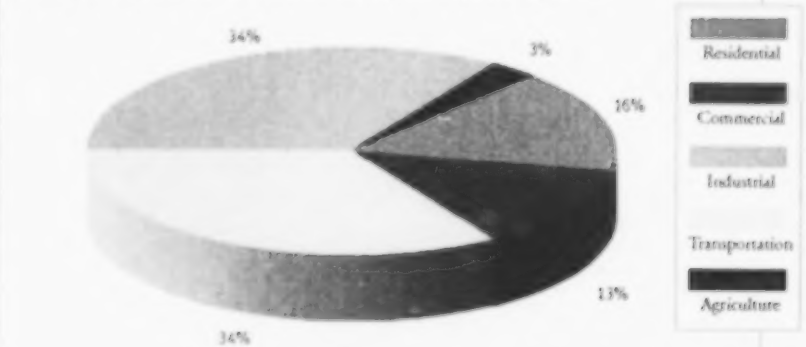
ENERGY USE BY END-USE, CANADA, 2000



Source: Natural Resources Canada, *Energy End-use Data Handbook, 1990 to 2000*, June 2002, p. 2-13.

FIGURE 9

GHG EMISSIONS BY END-USE, CANADA, 2000



Source: Natural Resources Canada, *Energy End-use Data Handbook, 1990 to 2000*, June 2002, p. 2-13.

ENERGY USE FOR TRANSPORTATION

Transportation contributes disproportionately to GHG emissions, partly because the energy used to power vehicles is usually generated from fossil fuels. In contrast, energy used in the commercial and residential sectors—primarily to heat, cool and light buildings—may come from cleaner sources such as natural gas or hydroelectricity.

More than half (57%) of the energy used for transportation is used to move passengers; cars account for the greatest share of this energy use, followed by light trucks (including SUVs), with buses a distant third. Freight transport accounts for 40% of transport energy use.

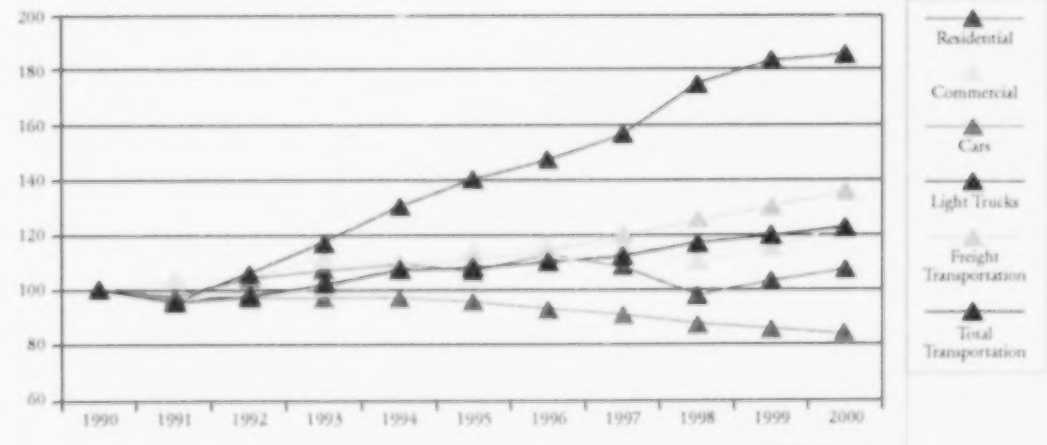
> In the City of Toronto, transportation is the largest source of emissions, responsible for an estimated 90% of carbon monoxide emissions, 83% of emissions of nitrogen oxides and 60% of sulphur dioxide emissions.[11]

Overall, transport energy use grew 21.5% between 1990 and 2000. Although energy used by cars declined by 15.4% during this decade, freight transportation used 34% more energy and energy use by light trucks increased by 85.2% (Figure 10).

The main factors in transport energy use are distance travelled, vehicle loading and mode, each of which is influenced by urban form.

FIGURE 10

ENERGY USE TRENDS, SELECTED END-USES, CANADA, 1990–2000

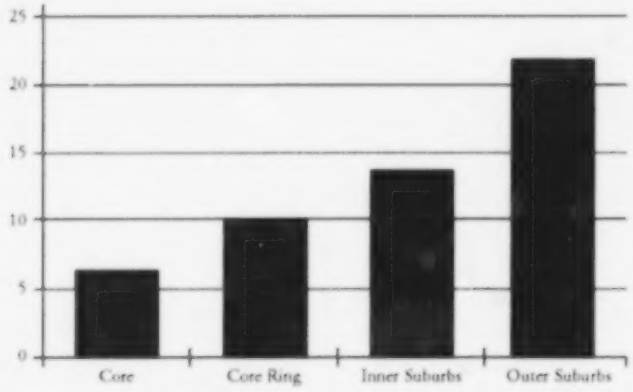


Source: Natural Resources Canada, *Energy End-use Data Handbook, 1990 to 2000*, June 2002, p. 2-5.

Travel patterns, and therefore the amount of energy used for transportation in urban areas, vary greatly with urban form. The density of urban areas, urban structure, mixing of uses or lack thereof, and street patterns all affect the number, length and mode of trips (e.g., walking, cycling, taking transit or driving a car). Total vehicle-kilometres travelled, for example, varies greatly according to location within the city (Figure 11).

FIGURE 11

VEHICLE-KILOMETRES TRAVELLED PER PERSON, PER DAY, TORONTO AREA, 1996



Source: Centre for Sustainable Transportation analysis of data from the *Transportation Tomorrow Survey*, 1996 (unpublished).

ENERGY USE FOR BUILDINGS

By end-use, energy used for residential, commercial and industrial buildings is responsible for the lion's share of GHG emissions (see Figure 9; note that the energy calculated for the industrial sector includes energy used for industrial processes). Especially in the residential and commercial sectors, most building energy is used for water heating, space heating and space cooling. These three end-uses account for more than 80% of all energy used for residential buildings.

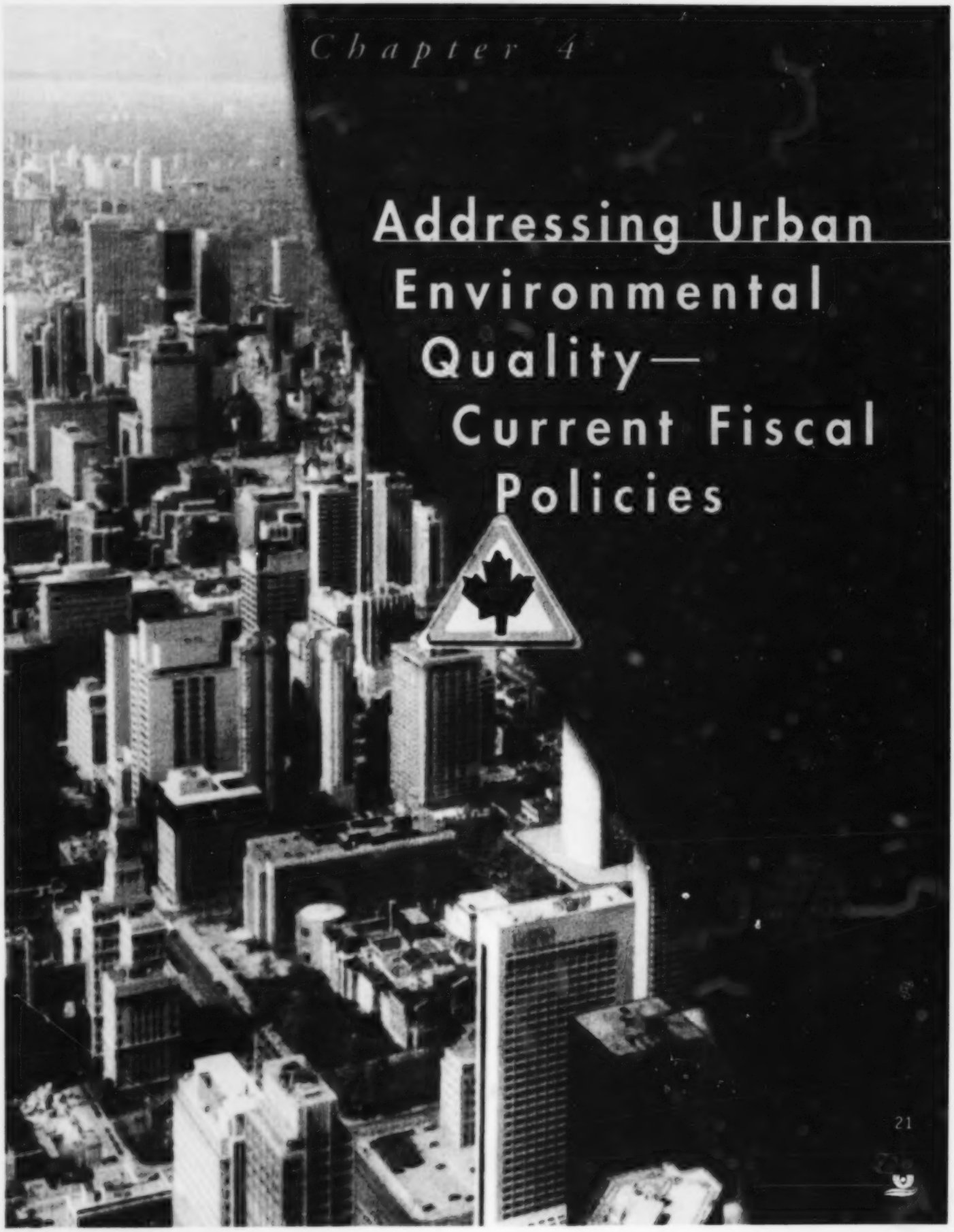
In Canada, building energy use grew more moderately than transport energy use from 1990 to 2000. Although the transport sector and the commercial sector (offices and institutions) have each increased their energy use by 22% since 1990, energy use in the residential sector in the same period rose by only 6.8%.

The main factors influencing building energy use include building construction (closely related to the age of the building), building shape and orientation (closely related to building type), internal climate characteristics (e.g., usual thermometer settings) and internal activity. Also, building energy use varies with urban form. For example, townhouses and apartments, which are more prevalent in urban areas, tend to be more energy efficient than single detached homes.[18]

Building energy use also varies with urban form.

Indeed, evidence suggests that overall energy use is inversely related to the density of development[19]: more compact, mixed-use cities, which support greater use of sustainable forms of transportation and less energy-intensive building types,[20] tend to use less energy.

A majority of participants in the Urban Sustainability Program determined that urban form is one of the most important drivers of urban environmental quality. It influences energy use for transportation, which is GHG-intensive and growing rapidly, particularly for light trucks, SUVs and freight transportation. Urban form also influences the energy efficiency of buildings, which are significant energy users and contributors to GHG emissions. And urban form influences the loss or disruption of agricultural lands, sensitive environmental areas, natural habitats and water quality.



Chapter 4

Addressing Urban Environmental Quality— Current Fiscal Policies

"Better horizontal coordination and vertical alignment of fiscal policies and programs are needed to ensure that government spending is effective and not undermined."

Which of the federal government's current fiscal policies influence urban environmental quality? Do they do so deliberately or unintentionally? How do the fiscal policies of the various levels of government work together (or not) to improve environmental quality in Canada's urban centres?

THE FEDERAL GOVERNMENT

As part of its research on urban sustainability, the NRTEE commissioned a review of federal fiscal policies and programs affecting urban environmental quality.[21] The review confirmed the findings of the Sgro Report: that federal government policies, spending and operations are a strong influence on urban environmental quality. In most cases, however, this influence is unintended, rather than deliberate. The federal government has no mechanism to evaluate its impact on urban environmental quality, let alone urban sustainability as a whole. As a result, the federal government's approach to urban environmental quality is inconsistent. For example:

- Several federal initiatives involve "greening government" (such as the Federal House In Order initiative, which requires individual departments to produce sustainability plans); however, most of these initiatives do not take into account the effect of federal facilities and operations on urban environmental quality.
- Only a portion of the $2.05 billion Infrastructure Canada Program is targeted to green infrastructure projects (and that portion varies from province to province), and the criteria for determining what constitutes "green" projects are not well defined. Furthermore, the more recently announced Canada Strategic Infrastructure Fund has no explicit green component.
- Although municipalities can claim a rebate of 57.14% of the Goods and Services Tax (GST) they pay, their effective GST rate of 3% still represents substantial sums of money given their often large-scale purchases (for example, the City of Toronto estimates that it pays $15–40 million in GST annually on transit vehicles alone).
- Some federal programs promote re-urbanization, such as one-off grants to waterfront revitalization and initiatives aimed at addressing brownfield redevelopment.
- Although GST rebates are available for new housing to encourage home ownership (estimated to be worth $520 million in 2000), renovations to make homes more energy efficient are usually not eligible for any GST rebate.
- There are incentive programs aimed at improving the energy efficiency of commercial and industrial buildings (e.g., the Commercial Building Incentive Program and the Industrial Building Incentive Program), yet no direct incentives for consumers to favour R-2000 homes (which use 30% less energy than conventional new homes).
- The federal government regulates vehicle emissions, but has not caught up with the trend toward SUVs and light trucks, whose energy use increased by 85% over the last decade; the 10 cents/litre fuel tax and Heavy Automobile Tax (which now includes SUVs, but is invisible to the consumer) have so far been unable to stem demand for these high-emission vehicles.

CASE STUDY: THE GREATER TORONTO AREA

The NRTEE also commissioned a case study22 — the first of its kind — which confirmed that there is also a wide range of fiscal policies at the provincial and municipal levels of government affecting urban environmental quality. Combined with the review of federal fiscal policy, this vertical slice through federal,

The most important factor affecting the energy use of vehicles is how far they drive. This is closely related to urban form, which is not systematically addressed in federal fiscal or other policy.

provincial and municipal programs and policies revealed the degree of complementarity or contradiction among the three levels of government.

The case study looked at three municipalities within the Greater Toronto Area (GTA)—the City of Toronto (a mature city), the City of Mississauga (a maturing city) and the Town of Markham (a newly urbanizing city). The three have differing urban forms and differing but interconnected transportation systems. Choosing a range of city types allowed a glimpse at how fiscal policies play out in different physical urban contexts. Given the structure of governance in the GTA, relevant policies at the regional level were also identified (policies of the Region of Peel, in the case of Mississauga, and the Region of York, in the case of Markham).

At the provincial level, the Ontario property tax system has significant impacts on patterns of growth and development in cities. The "current value assessment" system in Ontario does not encourage sustainable urban development patterns; it reflects the market value of properties rather than the degree to which they contribute to municipal costs.

This property tax system has also long been biased against multi-unit residential development, applying a higher rate of taxation to these buildings than to single detached dwellings. Ontario is currently addressing this by creating a new class for new multi-unit buildings for a period of 35 years, allowing municipalities to tax multi-unit buildings at the same rate as other residential development.

The Ontario government has several programs that allow exemptions to basic property tax provisions, including:

- the Ontario Tax Reduction for Heritage Property, which encourages the preservation of heritage properties by offering a 10–40% reduction in municipal taxes; and
- the Farmland Taxation Policy, which aims to keep certain types of land from development and requires that the farmland property class be taxed at 25% of municipal residential rates.

However, such tax reductions are often borne by the municipalities. And some exemptions can in fact operate against urban sustainability over a long period; the Ontario Property Tax Rebate for Vacant Commercial and Industrial Buildings, for instance, allows municipalities to offer a property tax rebate if buildings remain vacant.

Ontario municipalities also have development charges at their disposal, which allow them to impose charges on new development reflecting the capital costs of corresponding investments in infrastructure (e.g., roads, transit, schools, sewers). In theory, the development charge should ensure that "growth pays for growth." However, as they are structured in Ontario — on a citywide, average-cost-per-dwelling-unit basis (e.g., a single detached house on a 70-foot lot pays the same charge as the same house on a 30-foot lot) — the development

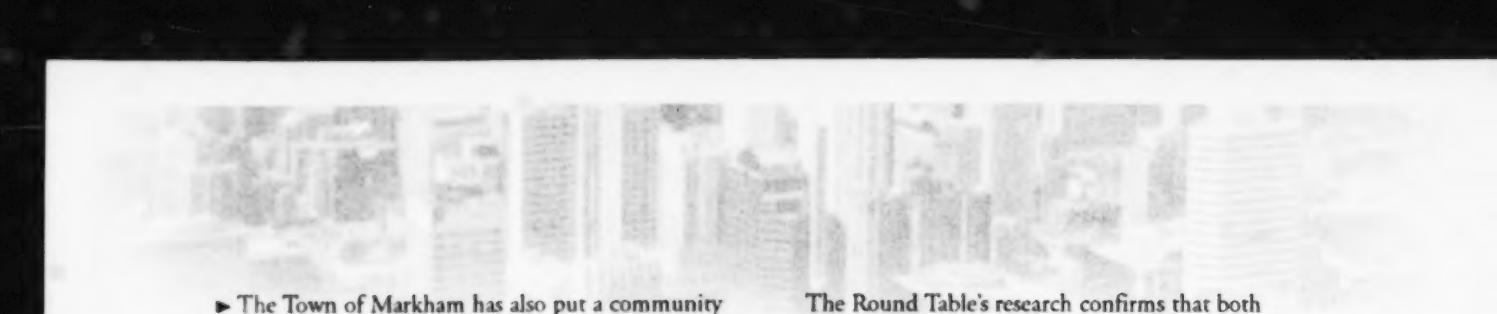
charge creates a range of cross-subsidies that militate against sustainable, affordable development patterns. Such biases are reflected in the ultimate price of housing or office rent, and can be substantial in suburban locations.

Other provincial policies and programs that affect urban environmental quality include the following:

- Under SuperBuild, the $3-billion Provincial Transit Investment Fund (which includes matching funding tentatively committed to by the federal government and local governments) intends to link investments to a growth management plan — (such as the province's in-progress Smart Growth Strategy) and includes the $100-million Ontario Transit Renewal Program (funding the replacement of ageing transit vehicles).
- A significant portion of SuperBuild funding — roughly $1 billion per year (from 1995 to 2002) — has gone to highway and road expansions, while only $3.2 billion has been spent on transit (with much going to Toronto's Sheppard subway line).
- The Canada–Ontario Infrastructure Program (which includes a $680-million federal commitment to match provincial SuperBuild and local funding) has an established target of 40% green investments but no sustainability criteria for project selection.
- The Ontario Land Transfer Tax Rebate, also an incentive aimed at home ownership, provides a rebate on the provincial land transfer tax to first-time buyers of new homes, but not resale homes.
- Ontario imposes a fuel tax (14.7 cents/litre), but not on more environmentally friendly fuels, and has several programs intended to encourage the use of more fuel-efficient vehicles (e.g., the Alternative Fuel Vehicle Incentive Program, the Tax for Fuel Conservation Program and the Tax Credit for Fuel Conservation Program).

Despite their limitations in raising revenues, municipalities have taken some encouraging action:

- The recently adopted York Region Transportation Master Plan, estimated to cost $5.6–7.3 billion in capital investments over a 30-year period, places strong emphasis on transit.
- The Town of Markham has structured its development charges to vary from area to area according to the actual cost variations; however, within each area they are still based on an average cost per dwelling unit, militating against denser, more efficient use of land.



- The Town of Markham has also put a community energy system in place to support denser development in and attract businesses to its new Markham Centre.
- Similarly, the City of Toronto has recently privatized its former Toronto District Heating Corporation, and the new entity — Enwave District Energy Limited[23] is currently embarking on a project to use deep lake water from Lake Ontario to cool downtown buildings.

As at the federal level, it is clear that there are inconsistencies among provincial and municipal policies and programs, at least those that apply to the GTA.

A LACK OF SYNERGY

Examples from the review of federal fiscal policies and programs and the GTA case study point to a pronounced lack of synergy — and in some cases, an obvious conflict — among fiscal and other policies aimed at improving urban environmental quality, both within individual governments and among levels of government.

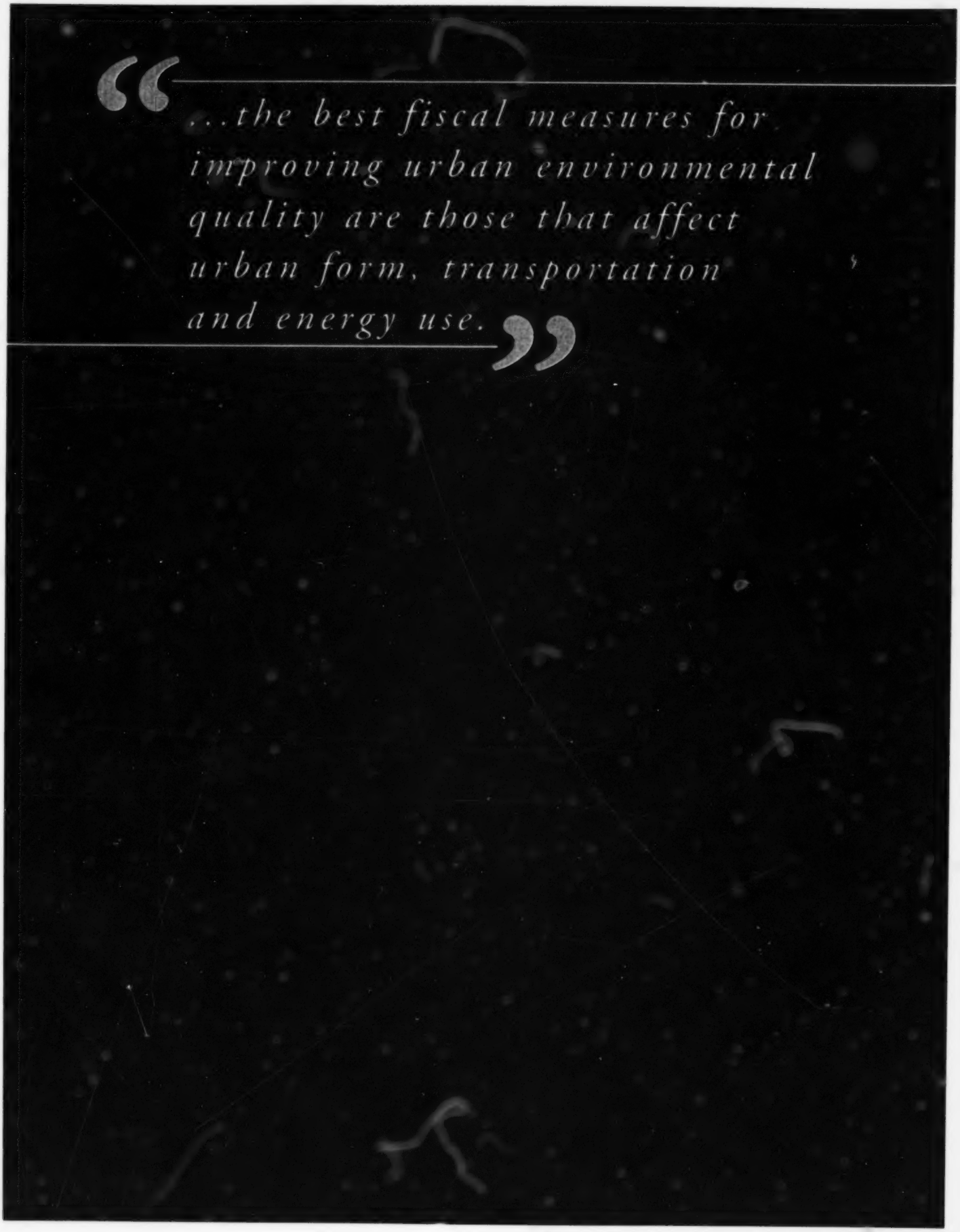
It makes little sense that the federal government extracts money from municipal property tax bases, in the form of GST on infrastructure expenditures, only to return it through infrastructure grants. Similarly, while so many fiscal policies unintentionally encourage low-density greenfield development (e.g., federal GST rebates for new housing, the Ontario Land Transfer Tax Rebate and municipal development charges), governments spend to mitigate their deleterious effects on already-urbanized lands (e.g., federal and provincial one-off grants for Toronto's waterfront regeneration).

There also seems to be an inconsistent approach to the funding of transportation. As evidenced by the case of Ontario's SuperBuild fund, investments in transit can certainly be undermined by concurrent investments in roads. Likewise, federal investments in transit can be undermined by inappropriate land use and urban development patterns determined primarily through local planning.

The Round Table's research confirms that both better horizontal coordination and vertical alignment of fiscal policies and programs are needed to ensure that government spending is effective and not undermined. It also suggests that fiscal policy must be carefully crafted if it is to improve urban environmental quality.

Chapter 5

High-priority Recommendations


"...the best fiscal measures for improving urban environmental quality are those that affect urban form, transportation and energy use."

Based on the research outlined above, the Urban Sustainability Task Force developed a list of 80 federal fiscal measures for improving urban environmental quality (see Annex C). The Task Force presented this list to two panels of experts (including municipal managers and fiscal experts in a variety of fields; see Annex D for a list of participants), who helped to identify a small number of measures with the greatest potential to improve urban environmental quality. This list of 12 high-priority measures was then further developed, refined and evaluated by the Task Force before being presented for review at a multistakeholder workshop (see Annex E for a list of participants). Based on input from workshop participants, the Task Force reduced this list to the 11 recommendations presented below.

MEMBERS of the Task Force, as well as a majority of other experts and stakeholders, concluded that the best fiscal measures for improving urban environmental quality are those that affect urban form, transportation and energy use. They felt that these areas are highly synergistic, such that measures to improve one area would spark improvements in the others. For example, directing development to already-urbanized areas can increase population densities, which can make the provision of transit more cost-effective. Denser areas can also more effectively support community energy systems. They also felt that these measures would be relevant to both large and small urban centres, although they would have the most significant impact in larger metropolitan areas.

These measures will promote more sustainable patterns of development, including a reduction in car use and energy consumption. They will also improve air quality, reduce dependence on non-renewable resources, ease development pressure on agricultural and environmentally sensitive lands, and help the federal government meet its obligations under the Kyoto Protocol by reducing emissions of GHGs.

Many of the NRTEE's high-priority recommendations support climate change initiatives identified in the 2003 federal budget.[24] Budget 2003 allocated $2 billion to promoting renewable energy, energy efficiency, sustainable transportation, and the use of new alternative fuels in building retrofits and other areas. It also noted the potential role of tax deductions (specifically, accelerated capital cost allowances under Class 43.1 of the Income Tax Regulations; *see* p. 48) in meeting Kyoto targets.

The first three high-priority recommendations call on the federal government to take immediate and comprehensive action to improve urban environmental quality by putting its own house in order. Recommendations 4 to 7 encourage the federal government to improve its collaboration with other levels of government on urban environmental issues by investing in municipal transit and sustainable municipal infrastructure. The final four recommendations set out how the federal government can encourage the private sector and individual citizens to make more efficient use of energy and land.

Several of the NRTEE's recommendations involve changes to the application of the federal GST, running

counter to the oft-expressed view that the GST shouldn't be used to achieve targeted policy objectives. In fact, the recommendations aim to correct some of the many existing variations in how the GST is applied — in this case, variations that unintentionally have a negative impact on urban environmental quality.

GETTING THE FEDERAL HOUSE IN ORDER

In recent years, the federal government has come to recognize the impact of its facilities and operations on the environment. It has launched several initiatives to reduce this impact, including the Federal House in Order (FHIO) initiative and the Sustainable Development in Government Operations (SDGO) initiative.

The FHIO initiative is the Government of Canada's plan for reducing its GHG emissions in line with *Action Plan 2000 on Climate Change*.[25] Through this initiative, the 11 departments and agencies that account for 95% of federal emissions have agreed to collectively reduce, by 2010, their GHG emissions by 31% from 1990 levels.

The SDGO initiative coordinates efforts to green federal operations and encourages the 25 departments and agencies required to prepare sustainable development strategies (every three years) to report on their progress in implementing these strategies. SDGO looks at a broad range of environmental issues related to government operations.

Both initiatives, however, lack a specific, necessary focus on urban environmental quality. The following three recommendations are intended to provide this focus. By acting on these recommendations, the government will not only benefit directly, but could also use media coverage, communications and educational programs to encourage other organizations to take similar action.

Adopt sustainability guidelines for the location and site design of federal facilities

The federal government owns or rents more building space than any other organization in Canada: 25 million square metres of space in 50 000 buildings, much of it in urban centres. Every year, the federal government makes myriad decisions about the location and construction of new facilities, the management and closure of existing ones, and the reallocation of space.

Current guidelines governing such decisions focus on minimizing short-term costs to taxpayers, without considering environmental costs and benefits. Although programs such as the Federal Buildings Initiative help federal departments and agencies consume less energy and water, reduce their GHG emissions and use renewable fuels, no program focuses on selecting building locations and site designs with the least impact on the environment.

In its recently developed departmental Good Neighbour Policy, Public Works and Government Services Canada suggests that local plans and priorities be considered when choosing a location for new federal office accommodation and general-purpose facilities. This includes consulting with local governments, incorporating community objectives into decision making and considering sustainable development "to the greatest extent possible." Although this is a promising start, it is not enough: community plans may not offer much direction regarding specific locations, and do not necessarily include assessments of how the choice of a certain location will affect the environment.

The federal government's *Climate Change Plan for Canada*[26] estimates that improving the energy efficiency of federal buildings will reduce GHG emissions by 0.2 MT. In the medium to long term, this reduction could likely be matched or exceeded simply by locating federal buildings with a view to reducing travel by workers and visitors to federal facilities, as well as by those supplying these facilities with goods and services, which are usually delivered by van or truck. Environmental impact should be a top consideration in the renewal and or replacement of aging federal buildings (such renewal or replacement will soon be required in the National Capital Region).

Many other jurisdictions have policies for siting facilities. The U.S. federal government has a policy requiring federal organizations looking for building space to consider heritage buildings in city centres.[27] Similarly, United States Postal Service officials have agreed to follow executive orders to consider central business areas and historic properties first when choosing locations.[28] The proposed Post Office Community Partnership Act

would go further, requiring the Postal Service to work more closely with communities when planning to change the location of its facilities.[29] At the state level, California, Indiana, Maine, Maryland, Massachusetts, Oregon, Pennsylvania and Vermont all have provisions regarding the "smart" location of their facilities.[30]

The following should be considered when choosing a location and site design for federal facilities:

- *Amount and mode of travel* — The location of facilities affects both how far workers and visitors, for example, must travel to get to the facilities as well as how they travel — by car, transit, foot or bicycle. Commuting by federal employees alone is estimated to produce 600 kilotonnes (kt) of GHG emissions annually.[31] In addition, the proximity of services and amenities such as restaurants, fitness facilities, dry cleaners and daycares affects how far and in what manner workers travel during working hours. In more suburban locations, for example, workers routinely use cars to go to lunch or to run lunch-hour errands, using more energy and producing more GHG emissions than workers in a city centre who walk, cycle or use public transit.
- *Consumption of greenfields versus already-urbanized land.* Facilities constructed on greenfields may infringe on or urbanize agricultural or environmentally sensitive land. A more sustainable option is to make use of an existing building in an already-urbanized area, where employees and visitors have access to better transit service and are more likely to walk or cycle to and from the facility.
- *Community energy.* Some areas within cities are serviced by community energy systems, which can significantly reduce the energy needed for building heating and cooling and may even provide a cleaner source of electricity.
- *Design.* Attention is already being paid to the energy efficiency of federal buildings. But site design can also have important environmental implications. This might include ensuring good access to transit facilities by locating the building to reduce walking distances, and providing good pedestrian paths and sidewalks. It might also include maximizing building density, minimizing the area devoted to surface parking lots and maximizing permeable areas to reduce storm runoff.

SUSTAINABILITY CHECKLIST FOR LOCATION AND SITE DESIGN

Location

- Use of existing buildings in already-urbanized areas before new construction on greenfields
- Easy access to good transit service
- Potential for walking and cycling access by employees and visitors
- Proximity (walking distance) to amenities and services for workers (e.g., restaurants, personal services and daycares)
- Potential to link to a community energy system
- Potential to contribute to the regeneration of economically depressed urban areas

Site design

- Maximized building density
- Integration with transit facilities (e.g., covered walkways connecting transit to the facility)
- Bicycle facilities, such as racks and showers
- Minimization and appropriate treatment of parking (e.g., the creation of underground or structured parking lots, landscaping lots to maintain street frontages)
- Maximized site permeability
- Easy pedestrian access to the facility
- Integration of other uses into the facility (e.g., restaurants, services, amenities and residences)

Recommendation 1: That the federal government, through Public Works and Government Services Canada and its Good Neighbour Policy, develop and adopt comprehensive sustainable development guidelines governing the location and site design of its urban facilities.

Develop a transportation demand management strategy, and adopt a more ambitious, targeted approach to greening the federal fleet

As the country's largest employer, purchaser and landlord, the federal government has a significant impact on the environment every day. It emits an estimated 3102 kt (CO_2 equivalent) of GHGs and other pollutants — 0.4% of Canada's total emissions — every year. Most of these emissions (80%) are associated with buildings, while 17% result from transportation.[32] The latter figure does not include the estimated 1500 kt of emissions produced when federal employees commute to and from work and travel on government business.[33] It also does not account for transportation-related emissions associated with visitors to federal facilities and deliveries. A strategy for reducing the amount of travel to a facility, as well as the impact of that travel on the environment (a transportation demand strategy, or TDM) could include:

- encouraging teleworking and tele-services as substitutes for travel;
- designing parking to reduce travel by car (e.g., ensuring an appropriate supply of parking spaces, including reduced parking supply in areas well served by transit; charging employees and visitors for parking; and setting an appropriate price for parking);
- developing ride-sharing programs; and
- launching transit pass programs such as ECOPASS,[34] which is being piloted in four federal departments.

To be effective, a TDM strategy must address not only employee travel, but also travel to the facility by visitors and travel required to deliver goods and services.

Improvements can also be made to the management of the federal fleet of 25 000 vehicles, most of which are powered by conventional fossil fuel. Although some federal initiatives have been undertaken, such as the FleetWise program and the Vehicle Ethanol Initiative, a more comprehensive strategy is warranted. Such a strategy might include:

- increasing the proportion of vehicles that use alternative fuels and produce fewer emissions than conventional ones;
- setting targets for the adoption of hybrid vehicles;
- adopting an aggressive average fuel efficiency for the federal fleet;
- replacing diesel fuel with biodiesel; and
- introducing bicycles and zero-emission vehicles into the fleet.

Recommendation 2: That the federal government, through Public Works and Government Services Canada, place additional emphasis on developing and implementing transportation demand management strategies, and adopt a more ambitious, targeted approach to greening its vehicle fleet.

Adopt sustainability guidelines for Canada Lands properties

The Canada Lands Company (CLC) is a Crown corporation with a mandate to manage and/or dispose of certain strategic properties on behalf of the Government of Canada. Its goal is to achieve a commercially oriented, orderly disposition of surplus real properties with the best value to the Canadian taxpayer.[35]

In 1999, CLC controlled 1267 hectares of land,[36] including many sites of strategic significance to the evolution of urban areas, such as the Downsview Airport site in Toronto and the former Canadian Forces Base in Calgary.

CLC has adopted an environmental policy statement that includes a pledge that the company

will follow all applicable laws and regulations, and "make all reasonable efforts to consider and resolve environmental issues while conducting its business in a cost-effective manner implementing best management practices." In line with this statement, CLC has in many instances protected environmentally sensitive land, remediated contaminated sites and created parks. There are also examples of development on CLC lands consistent with sustainability principles, such as the Garrison Woods property in Calgary.

CLC could, however, go much further to ensure the sustainable development of its land holdings. This would involve a more systematic and comprehensive approach to the development of its holdings, one that includes not only environmental cleanup and the preservation of green space, but also a more sustainable approach to buildings and infrastructure. Such an approach should incorporate principles of sustainable urban development, which are well known and include:

- achieving higher densities;
- mixing land uses;
- mixing housing types;
- integrating transit into site design;
- ensuring that road layouts and street design support transit, walking and cycling; and
- using alternative development standards for infrastructure such as roads or storm water management.

If CLC applied such principles to the management of the land it manages or disposes of, the significant and direct environmental impacts would include reduced pressure for greenfield development, reduced impact on affected ecosystems and reduced emissions.

CLC could become a leader in sustainable urban development, showcasing innovative practices and demonstrating their reliability and effectiveness. A lack of implemented projects has been a significant obstacle to the widespread adoption of sustainable urban development in this country.

Recommendation 3: **That the Canada Lands Company (CLC) develop a Sustainable Development Code of Practice, which would provide a clear framework for ensuring that lands managed or disposed of by CLC are developed according to principles of sustainable development. The NRTEE also recommends that CLC consider working with research organizations to monitor and evaluate the performance of CLC projects, and disseminating this information.**

SUPPORTING THE USE OF URBAN TRANSIT

Shifting from automobile travel to transit will likely have the single greatest impact on the environmental quality of Canadian cities and their effect on the global environment. Bringing about this shift involves making transit attractive and competitive relative to the automobile in terms of convenience, cost and comfort.

The *2002* Speech from the Throne promised a strategy for a "safe, efficient and environmentally responsible transportation system that will help to reduce congestion in our cities and bottlenecks in our trade corridors."

There are many compelling reasons for federal involvement in urban transit, including:

- *Canada's commitments under the Kyoto Protocol.* Transit vehicles consume less energy and thus emit fewer GHGs per passenger-kilometre than do automobiles and light trucks. For example, a bus emits 65% fewer GHGs per passenger-kilometre than a car with only one occupant, and from 25–90% fewer pollutants.[37]

The federal government's *Climate Change Plan for Canada* suggests ways to improve urban transit and planning, including:

- increased use of public transit, alternative approaches to passenger transportation and sustainable urban planning, estimated to reduce GHG emissions by 7 MT; and
- demonstration of integrated strategies, technologies and planning to reduce urban transportation emissions by 0.8 MT.

- ***Trade and productivity.*** Transit takes people out of cars, reducing congestion and the need to fund major new road improvements. As noted in a paper prepared as part of the 2001 review of the *Canada Transportation Act*, "the main argument in favour of a federal role [in funding transit] is that congestion is a nation-wide phenomenon and a major barrier to national productivity growth."[38] A significant and growing cost to businesses, urban congestion also affects trade by clogging up major Canada–U.S. trucking routes: an estimated 40% of Quebec's exports move through Ontario on some of the most congested (and worsening) routes in Canada.[39] At the same time, Canada's competitors to the south are investing heavily in transit.
- ***Innovation.*** Urban environmental quality plays a key role in attracting the "talent" that Richard Florida argues is the basis of an innovative economy. He notes that good public transit systems, high-quality natural environments and coordinated approaches to managing urban sustainability are among the factors influencing where this talent chooses to live.[40]
- ***Functioning labour markets.*** Transit plays a key role in ensuring that workers can get to their jobs. In jurisdictions where urban form and investments do not support transit, workers — particularly those who earn low wages and cannot afford to travel by car — may be unable to reach distant jobs within the confines of a regular working day.

Despite these significant benefits, the average number of transit trips taken per person (the per capita ridership) in Canada decreased by 25% between 1989 and 1996.[41] There are many reasons for this decline, including suburbanization, the proliferation of land-use patterns that do not support cost-effective urban transit, and the lack of continued investment in upgrading and expanding transit as urban regions expand.

Provide stable funding for urban transit

Although some transit routes can break even or turn a profit, no transit system in any G7 country is able to function without subsidies.[42] In most countries, these subsidies constitute a much higher proportion of transit budgets than they do in Canada, which has some of the most cost-effective public transit systems in the world. In Canada, 62% of operating costs are recovered from the fare box.[43] In Toronto, this figure is even higher, reaching 80%. Just as auto use is subsidized in a number of ways, through investment in roads and research and development subsidies to the oil industry, subsidies are necessary to creating attractive transit systems in Canadian cities.

The provinces, in collaboration with local authorities, have historically been responsible for transit services. However, rapid growth in urban areas in the 1990s, coupled with aggressive cost cutting in many provinces and the devolution of responsibility for transit to the local level, have forced many municipalities to rely solely on property taxes and some limited one-time grants to make long-term investments in transit. Only Quebec, Alberta and British Columbia fund public transit from gas taxes and vehicle licensing fees. Manitoba provides grants on a year-to-year basis.

A significant infusion of investment is required to address a double challenge: redressing the under-investment in transit over the last decade and creating urban transit systems that are a credible, viable and attractive alternative to car use.

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- demonstration of integrated strategies, technologies and planning to reduce urban transportation emissions by 0.8 MT.

ridership) in Canada decreased by 25% between 1989 and 1996.[41] There are many reasons for this decline, including suburbanization, the proliferation of land-use patterns that do not support cost-effective urban transit, and the lack of continued investment in upgrading and expanding transit as urban regions expand.

- *Trade and productivity.* Transit takes people out of cars, reducing congestion and the need to fund major new road improvements. As noted in a paper prepared as part of the 2001 review of the *Canada Transportation Act*, "the main argument in favour of a federal role [in funding transit] is that congestion is a nation-wide phenomenon and a major barrier to national productivity growth."[38] A significant and growing cost to businesses, urban congestion also affects trade by clogging up major Canada–U.S. trucking routes; an estimated 40% of Quebec's exports move through Ontario on some of the most congested (and worsening) routes in Canada.[39] At the same time, Canada's competitors to the south are investing heavily in transit.
- *Innovation.* Urban environmental quality plays a key role in attracting the "talent" that Richard Florida argues is the basis of an innovative economy. He notes that good public transit systems, high-quality natural environments and coordinated approaches to managing urban sustainability are among the factors influencing where this talent chooses to live.[40]
- *Functioning labour market.* Transit plays a key role in ensuring that workers can get to their jobs. In jurisdictions where urban form and investments do not support transit, workers — particularly those who earn low wages and cannot afford to travel by car — may be unable to reach distant jobs within the confines of a regular working day.

Despite these significant benefits, the average number of transit trips taken per person (the per capita

Provide stable funding for urban transit

Although some transit routes can break even or turn a profit, no transit system in any G7 country is able to function without subsidies.[42] In most countries, these subsidies constitute a much higher proportion of transit budgets than they do in Canada, which has some of the most cost-effective public transit systems in the world. In Canada, 62% of operating costs are recovered from the fare box.[43] In Toronto, this figure is even higher, reaching 80%. Just as auto use is subsidized in a number of ways, through investment in roads and research and development subsidies to the oil industry, subsidies are necessary to creating attractive transit systems in Canadian cities.

The provinces, in collaboration with local authorities, have historically been responsible for transit services. However, rapid growth in urban areas in the 1990s, coupled with aggressive cost cutting in many provinces and the devolution of responsibility for transit to the local level, have forced many municipalities to rely solely on property taxes and some limited one-time grants to make long-term investments in transit. Only Quebec, Alberta and British Columbia fund public transit from gas taxes and vehicle licensing fees. Manitoba provides grants on a year-to-year basis.

A significant infusion of investment is required to address a double challenge: redressing the under-investment in transit over the last decade and creating urban transit systems that are a credible, viable and attractive alternative to car use.

The federal government has funded transit investments in Edmonton and Toronto under its Infrastructure Canada program. More recent contributions to transit authorities, such as the $76 million given to the Toronto Transit Commission for improvements and upgrades, reflect more of an ad-hoc approach.

Budget 2003 allocated an additional $2 billion for large infrastructure projects in major urban centres under the Canada Strategic Infrastructure Fund, doubling that program's funding. The budget also announced an additional $1 billion for smaller municipal infrastructure projects. Presumably, transit will be eligible for this funding, particularly since projects related to climate change will be given special consideration. There remains, however, a need for the federal government to develop a consistent, coherent approach to transit funding and a stable, long-term investment strategy to address transit needs that would allow proactive planning for new routes and facilities.

In many cases, the pent-up demand for transit has not been accommodated because of lack of funding. Trains and buses could be full tomorrow if only funding were available to purchase and operate new vehicles. GO (Government of Ontario) transit, for example, estimates that 37% of its projected ridership growth — 17 000 riders per day—would consist of latent demand. This is confirmed by real world experience in which improved service results in an "immediate and often dramatic ridership spike."[44]

The Canadian Urban Transit Association (CUTA) estimates current planned transit investment in Canada at $13.6 billion for 2002–2006. About half of this investment is part of transit systems' current plans; the other half is contingent on new, external funding. However, even the "planned" expenditures are not necessarily budgeted for, nor have guaranteed funding.[45] Moreover, most of the projects that must rely on external funding are intended to respond to population growth or attract new ridership, and therefore have the greatest potential to improve urban environmental quality.

Under its widely heralded *Transportation Equity Act for the 21st Century*[46] (TEA-21), the U.S. federal government allocated US$42 billion for urban transit between 1998 and 2003. In 2000, US$5.5 billion was spent for public transit: approximately $4.5 on capital investments and $1 billion on operations. Transit ridership in the United States increased by 12% between 1995 and 2000, while transit ridership in Canada remained stable. According to the FCM, if Canada were to fund transit on a per capita basis, as the United States does, federal grants would amount to $750 million annually for capital costs and $166 million for operations.[47]

The FCM has recommended that the federal government contribute $500 million to multi-modal transportation systems in 2003–2004, and that it increase this funding to $1 billion per year within five years. A study undertaken for Transport Canada estimates that $1.4 billion per year in capital funding and $300 million per year in operating funding is required for transit ridership to increase significantly.[48] To be effective, any federal operating funding will likely require matching funding from provinces and municipalities.

A federal investment in transit should have to meet certain criteria to ensure that it is effective. A key measure of success, as suggested by the FCM, is the number of net new transit riders gained from the investment.

Recommendation 8: That the federal government invest $1 billion per year for 10 years in transit in Canada's cities. This investment should target growing urban regions where there are opportunities to discourage land use that doesn't support transit and to significantly increase the number of net transit riders. Federal funding should be allocated according to a basic yet effective set of criteria, such that project proponents:

a) show how the proposed transit investment fits into a comprehensive, longer-term plan to support transit ridership and, specifically, increase the share of trips taken by urban transit;

b) estimate the number of net new transit riders who will be attracted from cars as a result of the investment;

c) indicate how the attractiveness of transit will be improved relative to the automobile (e.g., traveller cost, travel times, convenience);

d) quantify investment spending on transit versus investment in automobile-related travel;

e) document a comprehensive approach to achieving land-use patterns that will support transit ridership, including area-wide planning policies; transit node and corridor-specific land use policies; and area-wide, transit node and corridor-specific municipal pricing policies (e.g., development charges, property taxes, user fees);

f) create a transportation demand management plan;

g) quantify the cost of the investment per net new transit rider;

h) indicate the financial contributions and roles of other partners, including provincial and municipal governments, other agencies, and the private sector;

i) document the environmental and economic benefits of the investment (e.g., reductions in greenhouse gas emissions, road infrastructure investments averted, congestion costs averted); and

j) monitor the results (e.g., actual net new transit riders, development in identified transit nodes and corridors).

Eliminate taxation of employer-provided transit passes

The taxation of transit passes provided by employers is a long-standing issue in this country. Both employer-provided parking and transit passes are treated as taxable benefits under the tax code. However, a range of loopholes makes it easier to avoid paying tax on parking than on transit passes, even though taking transit benefits the public and driving an automobile does the opposite. For example, if an employer provides open parking rather than spaces dedicated to particular employees, the parking is not considered a taxable benefit. An estimated 80% of Canadian workers do not pay for parking at their place of employment.[49] In other words, public tax policy encourages the use of private automobiles and penalizes the use of public transit. This is both detrimental to the environment and unfair to transit riders, who tend to have lower incomes than car drivers.

In the United States, where employer-provided parking is not considered a taxable benefit, considerable effort has been made to ensure that transit-related benefits are also not taxed so that transit riders and car drivers are treated equally from a tax perspective.[50] Under the TEA-21[51], both employers and employees receive tax-free benefits related to transit. Employees can allocate up to $65 per month of their salary before taxes to pay for transit or vanpool parking and are not taxed on this amount. Employers can also exclude qualified transportation benefits from the gross income of their employees, thereby saving on payroll taxes. These flexible mechanisms for structuring the tax benefit have proven to be an effective way to encourage transit use.

If Canada adopted similar mechanisms, transit ridership would increase by an estimated 37–58% in participating workplaces, depending on the type of transit tax benefits offered. Across the commuter workforce, transit ridership would increase by 11–35% and the number of trips by car would shrink by 2.4–7.5%.[52]

These substantial benefits will come at a cost. The cost to the federal and provincial governments of not collecting taxes on employer-provided transit passes is an estimated $9–12 million in the first year, rising to

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These substantial benefits will come at a cost. The cost to the federal and provincial governments of not collecting taxes on employer-provided transit passes is an estimated $9–12 million in the first year, rising to

$77–96 million by 2010 if the estimated increases in transit ridership prove correct.[53] CUTA estimates the cost of a TEA-21-style, flexible benefits program to be $20 million in the first year, rising to $118 million in 10 years.[54]

Although there has been long-standing debate in Canada about the usefulness — and particularly the cost-effectiveness — of not taxing transit passes provided by employers, the NRTEE encountered widespread support for this measure. It will complement the substantial federal investment in transit recommended above, and could lead to the consideration of more flexible mechanisms such as those used in the United States.

Recommendation 5: That the *Income Tax Act* be amended to make employer-provided transit passes a tax-exempt benefit, given the myriad benefits associated with increasing urban transit ridership.

PROMOTING SUSTAINABLE INFRASTRUCTURE

Introduce sustainability and competitiveness criteria for federal infrastructure programs

The federal government invests in municipal infrastructure through such programs as Infrastructure Canada, the Canada Strategic Infrastructure Fund, the Green Municipal Investment Fund and Green Municipal Enabling Funds.[55]

Typically, only a portion of the funding under the Infrastructure Canada program is allocated to sustainable infrastructure projects. Although Budget 2003 added $2 billion to the Canada Strategic Infrastructure Fund and gave climate-change related projects particular consideration, there is still no coherent approach to integrating consideration of urban environmental impacts in funding decisions.

This lack of attention to urban environmental quality is disturbing, considering:

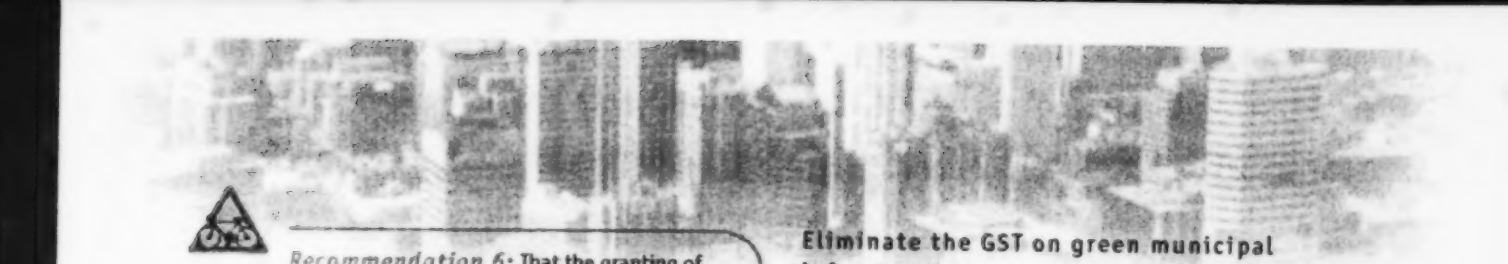
- the high levels of potential investment involved;
- the magnitude of the potential positive impact on urban sustainability of current and future infrastructure investment by municipalities;
- the long timeframe the investment will be in place and therefore influence urban sustainability well into the future; and
- the strong influence infrastructure investments can have on urban development patterns.

Federal municipal infrastructure investments must ensure maximum contributions to urban environmental improvements and the attainment of other federal objectives, such as reaching Kyoto targets.

Putting new infrastructure in place establishes a course for many years. There is a need to invest in the 21st-century city, not entrench unsustainable structures for decades to come. Any new infrastructure projects must represent the most sustainable option. FCM's *Guide to Green Infrastructure for Canadian Municipalities* offers information on approaches and best practices that support improved urban environmental quality.[56]

A new approach to federal funding for urban infrastructure is required — one that offers stable, long-term funding, and is both flexible and results-oriented. This means that all municipal infrastructure funded through federal government infrastructure programs will contribute to improved environmental quality in a cost-effective way. The focus is on performance rather than on identifying specific types of eligible infrastructure.

As such, infrastructure projects should be proposed within the context of a Sustainable Community Investment Plan, to ensure the effectiveness of federal investment. Part of federal infrastructure funding would provide grants to municipalities to contribute to the development of the Sustainable Community Investment Plan.



Recommendation 6: That the granting of federal infrastructure funding be subject to a practical, performance-based set of criteria that ensures funded projects make substantial contributions to improved environmental quality in a cost-effective manner. Proponents should be required to submit a Sustainable Community Investment Plan, outlining the needs to be addressed by the infrastructure investment and demonstrating:

a) how the proposed infrastructure investment fits into a comprehensive, longer-term investment plan for improving urban environmental quality;

b) how existing infrastructure capacities have been or will be fully exploited;

c) how all options for jointly addressing infrastructure needs with surrounding municipalities or other relevant entities have been explored and fully exploited;

d) a comprehensive approach to managing the demand for the infrastructure (for example, for transportation infrastructure, a transportation demand management plan is required; for water-related projects, a metering program);

e) that a range of alternative options for solving infrastructure needs—including other types of infrastructure—have been explored;

f) a life-cycle costing analysis of the proposed project and alternatives;

g) financial contributions and roles of other partners, including provincial government, municipal government, other agencies and the private sector; and

h) a quantification of the expected environmental improvements in terms of air, water or soil quality of the proposed project and the alternatives.

Eliminate the GST on green municipal infrastructure

Currently, the federal government charges GST on all taxable purchases made by municipalities, including infrastructure for urban transit, water and wastewater. Although municipalities may apply for a rebate of 57.14% of the GST paid on these purchases (resulting in an effective tax rate of 3%), provincial and territorial governments are fully exempt, as the federal government cannot legally tax them.

No distinction is made between municipal purchases that improve environmental quality (e.g., investments in transit infrastructure) and those that do not (e.g., investments in roads); both are subject to the GST and eligible for the rebate. The Toronto Transit Commission estimates that since the introduction of the GST it has remitted $130 million to the federal government.[57] This money could have been invested in the transit system to improve service and convert drivers to riders.

It makes little sense to remit money raised from property taxes to the federal government, particularly when municipal governments face severe financial challenges and the federal government is funding municipal infrastructure. Indeed, given that municipal investments in certain types of infrastructure, such as transit vehicles and wastewater treatment, produce environmental benefits, a strong argument can be made to encourage such investments.

Increasing the GST rebate on municipal investments in green infrastructure to 100% would encourage such investments and discourage investments in conventional infrastructure. In some cases, the increased rebate would defray the higher costs of new green technologies, thereby encouraging their use and diffusion. In all cases, the rebate would improve the environmental quality of Canada's urban centres.

Some Task Force members believe that the 100% tax rebate should apply only to investments in infrastructure that performs the best environmentally and that anticipates future improvements in standards. However, the NRTEE could find no practical means of applying this restriction to the range of municipal infrastructure, particularly given that this is a tax measure and therefore requires very straightforward

interpretation. The NRTEE suggests that the federal government consider developing environmental performance standards for municipal infrastructure as a medium-term measure.

Recommendation 7: That the municipal GST rebate be increased from 57.14% to 100% for expenditures by municipalities and municipal agencies on infrastructure that improves urban environmental quality. Infrastructure expenditures eligible for the 100% rebate would be specified, and could include investments in:

- transit vehicles and their maintenance and repair;
- water and wastewater infrastructure;
- renewable energy infrastructure (e.g., wind power);
- community energy systems; and
- infrastructure purchased by municipalities as part of projects funded under federal-municipal infrastructure or transit investment programs.

ENCOURAGING THE EFFICIENT USE OF ENERGY AND LAND

The federal government's Climate Change Plan for Canada identifies a number of actions for GHG reduction related to residential energy use. Budget 2003 also allocated $2 billion in funding to support the Kyoto targets, including funding for energy efficiency and building retrofits. The measures outlined below would directly support the implementation of these actions.

While the first recommendation — addressing community energy systems — could improve energy efficiency for a full range of economic activities and land uses, the other three focus on residential development. Current federal initiatives support improved energy efficiency in the commercial, industrial and high-rise residential sectors, but no such incentives address the energy efficiency of low-rise residential buildings.[38]

Make community energy systems eligible for the accelerated capital cost allowance under Class 43.1 of the Income Tax Regulations

Community energy systems use steam or electricity to heat or cool clusters of residential or commercial buildings, making them well-suited to urban areas where buildings are relatively close together. They rely on a range of energy sources, including natural gas, methane, geothermal resources or even deep lake water.

Such systems, although not explicitly mentioned in the *Climate Change Plan for Canada*, can make a significant contribution to the reduction of GHG emissions. The Hamilton Community Energy Project, which began distributing heat to 11 buildings in early 2003, estimates that these buildings will collectively reduce sulphur dioxide emissions by 57 tonnes per year, emissions of nitrogen oxides by 13 tonnes per year, and emissions of carbon dioxide, a major GHG, by 9851 tonnes per year.[39]

But community energy systems are capital intensive, requiring significant upfront investments in physical plant and distribution networks. As a result, returns on investment can take a long time to materialize. Most community energy systems are financed either by municipalities or through arrangements between municipalities and developers who bring private or institutional funding. Attracting more private funding would both spur the creation of more community energy systems and free up municipal funds for other uses.

Before 1994, the equipment needed to produce and distribute community energy was eligible for an accelerated capital cost allowance (ACCA) under Class 34 of the Income Tax Regulations (now Class 43.1). Were this equipment once again eligible for an ACCA, community energy systems would be much more attractive investments. In fact, a broader review of the investments eligible for tax rebates under Class 43.1, with a view to achieving Kyoto Protocol targets, may be warranted.

Recommendation 8: **That the federal government amend Class 43.1 of the Income Tax Regulations to make capital investments in community energy systems (including investments in generation equipment, underground pipes and thermal host systems) eligible for the accelerated capital cost allowance.**

Provide a GST rebate for eco-efficient renovations

Older homes are much less energy efficient than new homes. A typical home built in 1950, for example, uses about twice the energy of a conventional new home of the same size.[59] Significant energy savings could be realized by retrofitting older homes with renewable energy technologies and with more energy-efficient HVAC (heating, ventilation and air-conditioning) equipment, water heaters, major appliances, windows and doors, and insulation.[61]

Buyers of new houses are eligible for a GST rebate of 36%, but homeowners undertaking renovations usually get no GST break.[62] The only financial incentives offered by the federal government for energy efficiency retrofits apply to high-rise residential buildings, which are eligible for grants and other assistance under the Commercial Building Incentive Program.

The federal government also offers no incentives for creating legal accessory units in urban homes, even though these units make more efficient use of residential space and urban infrastructure, encourage the use of transit, and increase the supply of affordable rental housing in good locations.

Some have suggested using a premium energy performance labelling program, such as the EnergyStar program, to guide an incentive for energy efficiency retrofits.[63] A GST rebate could be provided for the most energy-efficient products, as identified by the program.

Budget 2003 stated that "the Government will continue to review the list of eligible investments under Class 43.1 to ensure appropriate tax treatment for renewable energy and energy conservation investments."

The *Climate Change Plan for Canada* identifies the need to make existing buildings more energy efficient, estimating that such an increase in energy efficiency could reduce GHG emissions by 1.2 Mt. It proposes that 20% of housing undergo energy efficiency retrofits by 2010, which would reduce emissions by an additional 1.5 Mt.

Recommendation 9: **That the federal government amend the Excise Tax Act to rebate 36% of the GST on the cost of renovations to homes that improve their energy efficiency. This should be accompanied by a premium energy performance labelling program, such as the EnergyStar program; only the most energy efficient products would be eligible for the GST rebate. In addition, the Excise Tax Act should provide a rebate of 36% of the GST paid on purchases associated with the creation of legal accessory units in existing houses.**

Provide a GST rebate for new R-2000 homes

Compared with older housing stock, new conventional housing is already relatively energy efficient. Most significant improvements are likely to be realized from moving to more widespread adoption of the R-2000 standard.

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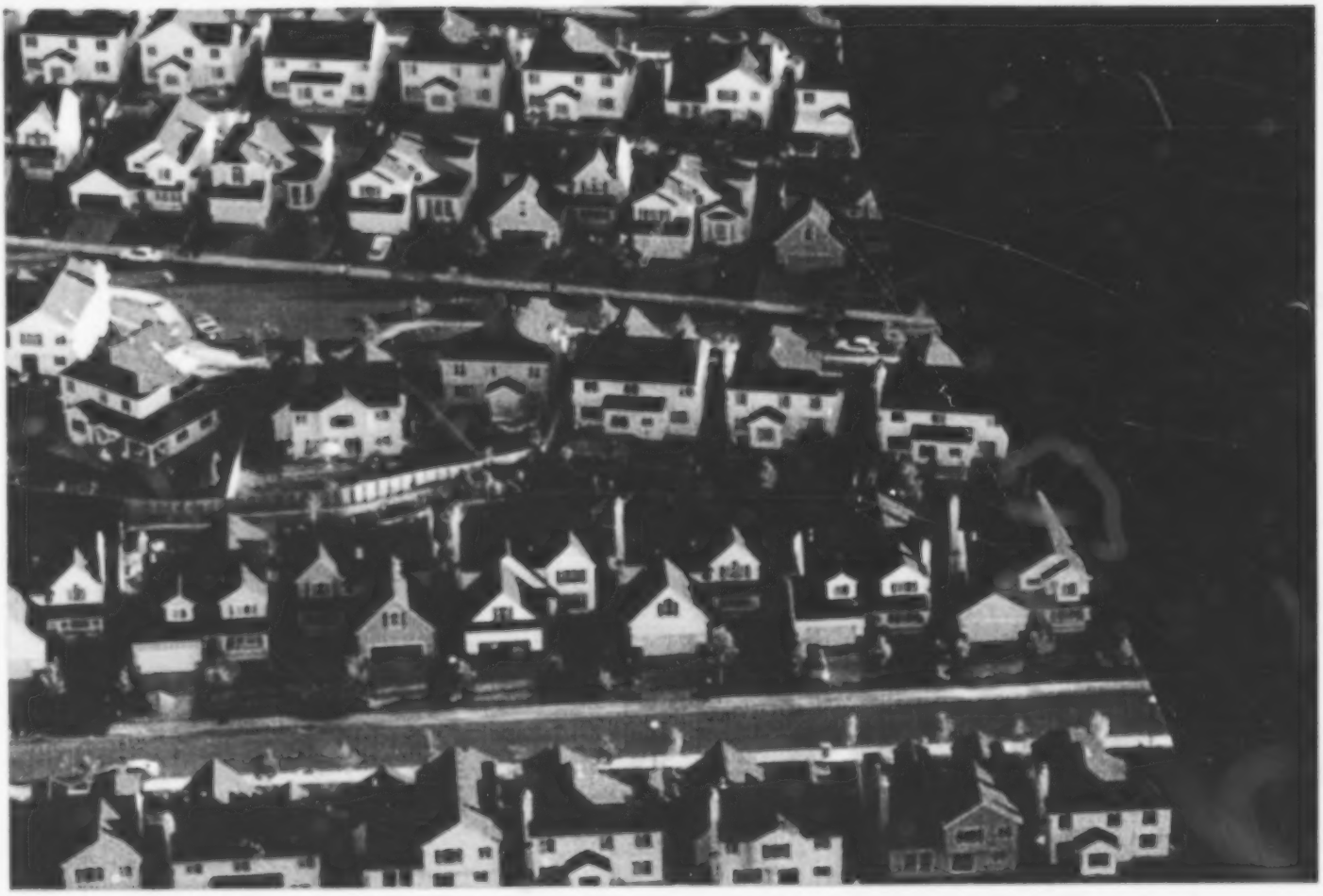
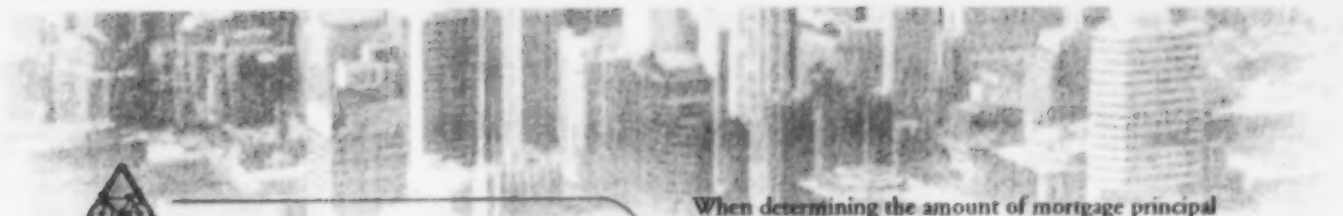


homes consume 30% less energy than conventional new homes, they represent only about 3% of new units.[64] One obstacle to the wider take-up of R-2000 homes is upfront cost, particularly in a new home market dominated by first-time buyers focused on affordability. Although they cost less to operate and therefore offer long-term savings, R-2000 homes are an estimated 2–4%[65] more expensive than conventional new homes.

A potential incentive involves offering an additional one percentage point GST rebate for new R-2000 homes, which would cover 25–50% of the additional cost of purchasing an R-2000 home. In addition, or alternatively, the 36% GST rebate for conventional new housing could be gradually reduced — for example, to 30% in five years — while the rebate for R-2000 homes is maintained or even increased, so that R-2000 homes cost the same or even less than conventional new homes.

The potential for R-2000 homes to contribute to a reduction in GHG emissions was recognized in the *Climate Change Plan for Canada*. It proposed that all new housing meet the R-2000 standard by 2010; this would reduce GHG emissions by 0.7 MT.



Recommendation 10: That an additional GST rebate of one percentage point (or 14% of the GST) be provided for new R-2000 homes, in addition to the existing 36% new housing rebate, bringing the total GST rebate to 50% for R-2000 homes. Alternatively, or concurrently, the existing 36% new housing GST rebate could be gradually redirected solely to R-2000 homes.

Explore a framework for eco-efficient mortgages

Given its more central location, housing in already-urbanized parts of cities is often more expensive than comparable new greenfield housing. Yet central locations offer services and opportunities that can reduce the need for car ownership and travel compared with new suburbs, including higher-order transit and opportunities to walk or cycle to school, shopping or work. Indeed, automobile ownership, total distance travelled by car and location within an urban region are strongly linked. As Table 1 shows, car ownership levels and total vehicle-kilometres travelled — often significantly lower in central locations — rise steadily and significantly toward the urban fringe.

When determining the amount of mortgage principal to lend, lenders following conventional practice do not adequately take into account the fact that people living in well-serviced urban areas are less likely to own a car or travel by car and therefore pay less for transportation than people living in greenfields. Owning fewer cars or no car at all can result in significant savings: the typical annual cost of car ownership in Canada — not including parking costs —is estimated to be about $8,500.[66] Households with fewer or no cars may therefore be able to carry a higher amount of mortgage principal. Lenders offering location-efficient mortgages (LEMs) do take lower transportation costs into account. They provide higher amounts of principal for buyers who purchase homes in areas where lower levels of car ownership, travel and transportation costs are likely. For example, under conventional mortgage lending practice, a moderate-income buyer may receive a maximum mortgage of $150,000. In many cities, this limits the choice of location to new housing on greenfields. The same buyer, purchasing a house in a well-serviced

TABLE 1

CAR OWNERSHIP AND DAILY TRAVEL BY CAR, URBAN ZONES, TORONTO AREA, 1996

Area	Percentage of households with no car	Daily kilometres per person by car
Core	51.89	6.83
Core Ring	31.45	10.16
Inner Suburbs	17.37	13.36
Outer Suburbs	5.82	23.23

Source: Centre for Sustainable Transportation, *Transportation Tomorrow Survey*, 1996.

location where transportation costs are typically lower, could be eligible for an LEM to a maximum of $200,000. Because the amount of principal is tied to the "efficiency" of the location, the buyer could not use the higher amount to buy a bigger house in a new suburb.

LEMs redress the current bias that encourages demand for new greenfield housing over other, more environmentally sustainable alternatives. In so doing, it supports reinvestment in older suburban areas, redevelopment of brownfields, increased use of transit and more efficient use of existing municipal infrastructure. With their solid urban transit infrastructure and wide variety of urban living options, Canadian cities are ideally suited to realize the benefits of LEMs.

Other jurisdictions are exploring the concept. For example, Fannie Mae, the largest source of home mortgage funds in the United States, is underwriting a two-year, $100-million pilot project to test LEMs in selected American cities. Although the project will provide valuable data, the differences between American and Canadian cities suggest the need to develop specific Canadian strategies for introducing LEMs.

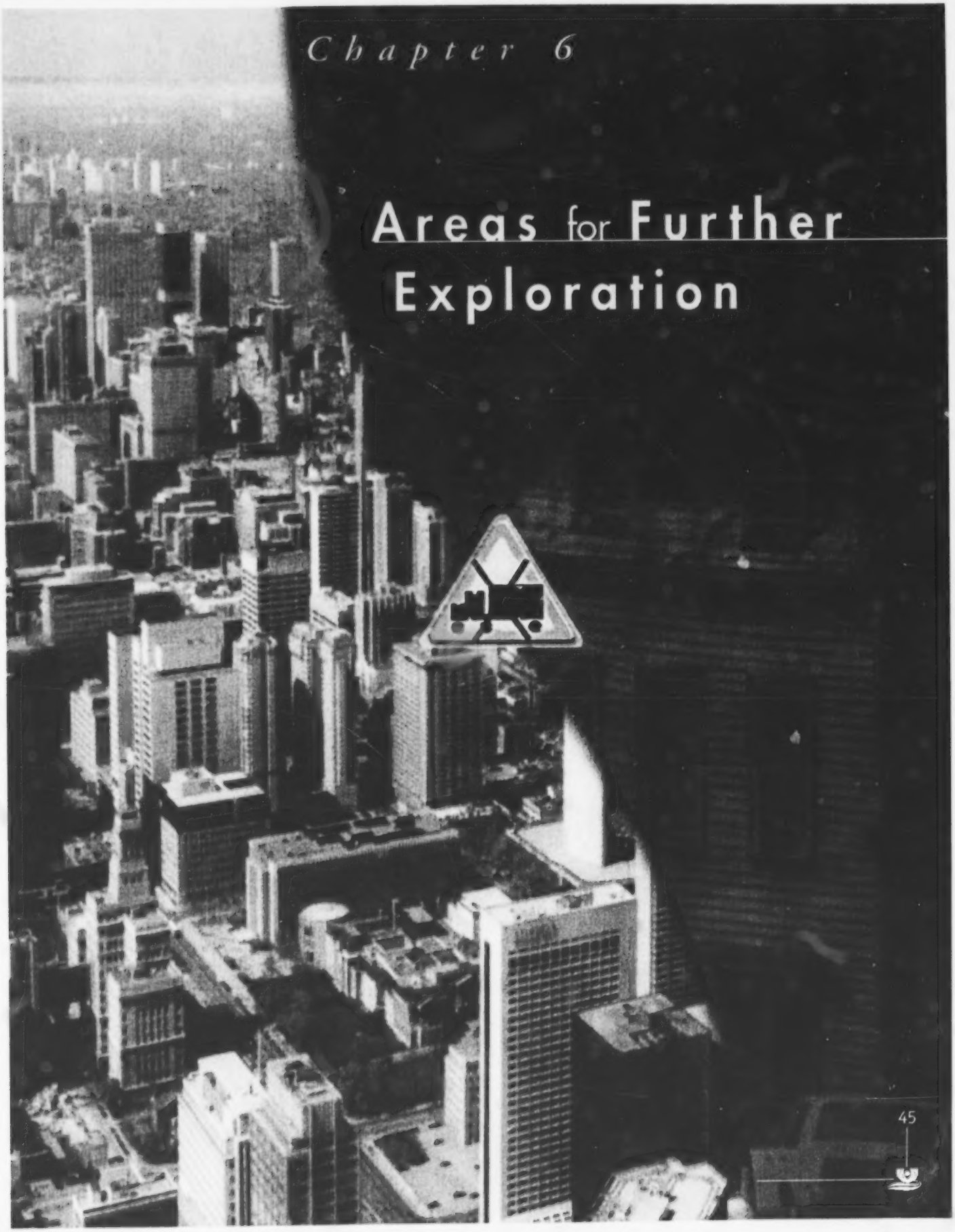
"Green mortgages" are similar to LEMs. These mortgages take into account the potential reductions in monthly expenses resulting from energy efficiency measures such as purchasing energy-efficient heating or appliances, participating in community energy systems or purchasing an R-2000 home.

Together, LEMs and green mortgages are referred to as "eco-efficient" mortgages. Eco-efficient mortgages have the potential to reduce pressures to develop greenfields, encourage energy efficiency renovations and the purchase of R-2000 homes, and — by decreasing driving distances and encouraging more environmentally sustainable modes of transportation — reduce emissions of GHGs and other pollutants from transportation.

Recommendation 11: That the federal government, through the Canada Mortgage and Housing Corporation, conduct research on the potential contribution of eco-efficient mortgages to the more efficient use of land in Canada. If research results warrant, this would lead to a pilot project. Then, if pilot project results warrant, a wider eco-efficient mortgage program involving the financial sector would be pursued.

Chapter 6

Areas for Further Exploration



"There is growing recognition of the role the federal government plays – deliberately and unintentionally – in shaping cities and urban environmental quality."

In addition to the high-priority measures, the Round Table has identified a number of areas that warrant further, more detailed exploration before they could be implemented within one to three years. These next steps include a range of additional tax measures relating to renewable fuels and the energy efficiency of dwellings and vehicles; further research on the impact of freight transportation on urban environmental quality; and the exploration of mechanisms within and among governments to ensure a more coherent approach to urban sustainability in general.

ADDITIONAL FISCAL MEASURES

Establish R-2000 standards and incentives for retrofits

Establishing an R-2000 standard for retrofits would help to improve the energy efficiency of older housing stock. As outlined in the National Climate Change Program's *Buildings Table Options Report*,[67] this would require development of an R-2000 retrofit guideline, training and certification of R-2000 retrofit contractors, independent evaluation and certification of R-2000 retrofits, program marketing, and possibly financial incentives. Once developed and in place, this new standard could be used to judge eligibility for the GST rebate for energy efficiency renovations proposed above (see Recommendation 9, page 40).

Restructure tax on vehicles according to emissions and explore more comprehensive and rigorous mechanisms to discourage the purchase of SUVs and light trucks

Taxes on vehicles should be restructured to reflect the degree of the vehicle's impact on the environment. Heavy-polluting vehicles, such as SUVs and light trucks, are a significant and fast-growing contributor to GHG emissions and should be more actively discouraged.

More rigorous emissions controls should be the immediate first step. But a more eco-rational tax regime — structured according to vehicle fuel efficiency or kilometres driven, for example—could reinforce the message. This could be achieved by introducing new tax measures, such as a new vehicle emissions surcharge, or by modifying any or all of several existing measures, such as the GST, the Heavy Automobile Tax and the gas tax. Likewise, the GST on low-emission vehicles could be reduced or eliminated to encourage higher levels of take-up.

Provide tax incentives for the use of renewable fuels

The federal government has recently begun to introduce incentives for the production of energy from renewable sources (e.g., the Wind Power Production Initiative). However, there are no parallel incentives to spur the demand for renewable energy. Such energy can be more expensive until market sizes grow to the point where economies of scale start to lower costs.

Develop environmental performance standards for municipal infrastructure

As noted above, there are no commonly recognized standards that indicate how various types of municipal infrastructure perform from an environmental perspective. Such a set of standards — similar perhaps to the EnergyStar system but assessing environmental impacts beyond just energy use — would be extremely effective, given the scale of investments in municipal infrastructure needed in the coming years.

Recommendation 12: That the federal government explore a number of potential fiscal measures to assess their contribution to improving environmental quality in Canada's urban centres and, if warranted, refine these measures for implementation in the next one to three years. These measures include:

- establishing an R-2000 standard and incentives for retrofits of residential buildings;
- restructuring tax on passenger vehicles to reflect emission levels;
- exploring more rigorous mechanisms to address the increasing contribution of SUVs and light trucks to energy use and emissions;
- providing tax incentives to promote demand for energy from renewable sources; and
- developing environmental performance standards for municipal infrastructure.

Recommendation 13: That the federal government undertake research on the role of freight transportation in urban environmental quality; the relationship between freight transportation and urban land use patterns; current and future trends; key drivers of related environmental outcomes; and potential fiscal, regulatory or program responses by government. This research would help fill a significant information gap relating to freight transportation, an area of growing impact on urban environmental quality.

PRIORITY AREAS FOR FURTHER RESEARCH

Explore the impact of freight transportation

Parallel with the recent explosion in the use of SUVs and light trucks is the fast-growing contribution of freight transportation, particularly truck transport, to energy use and GHG emissions. Yet relatively little is known about truck transport, particularly in relation to urban areas. Truck transport is rapidly becoming a significant urban environmental problem with global repercussions, warranting more research to develop sound policy responses.

A MORE COHERENT APPROACH TO URBAN ENVIRONMENTAL QUALITY

As powerful as fiscal policy can be in improving the quality of the environment in Canada's cities and beyond their borders, it is only one part of a comprehensive approach. The NRTEE recognizes that more effective coordination and cooperation within the federal government, among federal, provincial and municipal governments, and with the private sector is an essential part of improving environmental quality and ensuring more effective use of tax policy and program spending.

Develop a national urban strategy

There is growing recognition of the role the federal government plays — deliberately and unintentionally — in shaping cities and urban environmental quality. This federal role needs to be made more strategic, coherent and coordinated. As noted in the Sgro report, a national urban strategy is needed. Beyond outlining the federal government's approach to the sustainability of Canada's cities, such a strategy should include a comprehensive framework for implementing fiscal policy in support of improved urban environmental quality. The recommendations put forth in this report could be the starting point for the development of this framework.

Recommendation 14: That the federal government develop a national urban strategy that outlines its role, intentions and actions for improving the sustainability of Canada's cities. This strategy should include a comprehensive framework for using fiscal policy to improve environmental quality in Canada's cities.

Establish mechanism(s) for coordinating action within the federal government and among governments

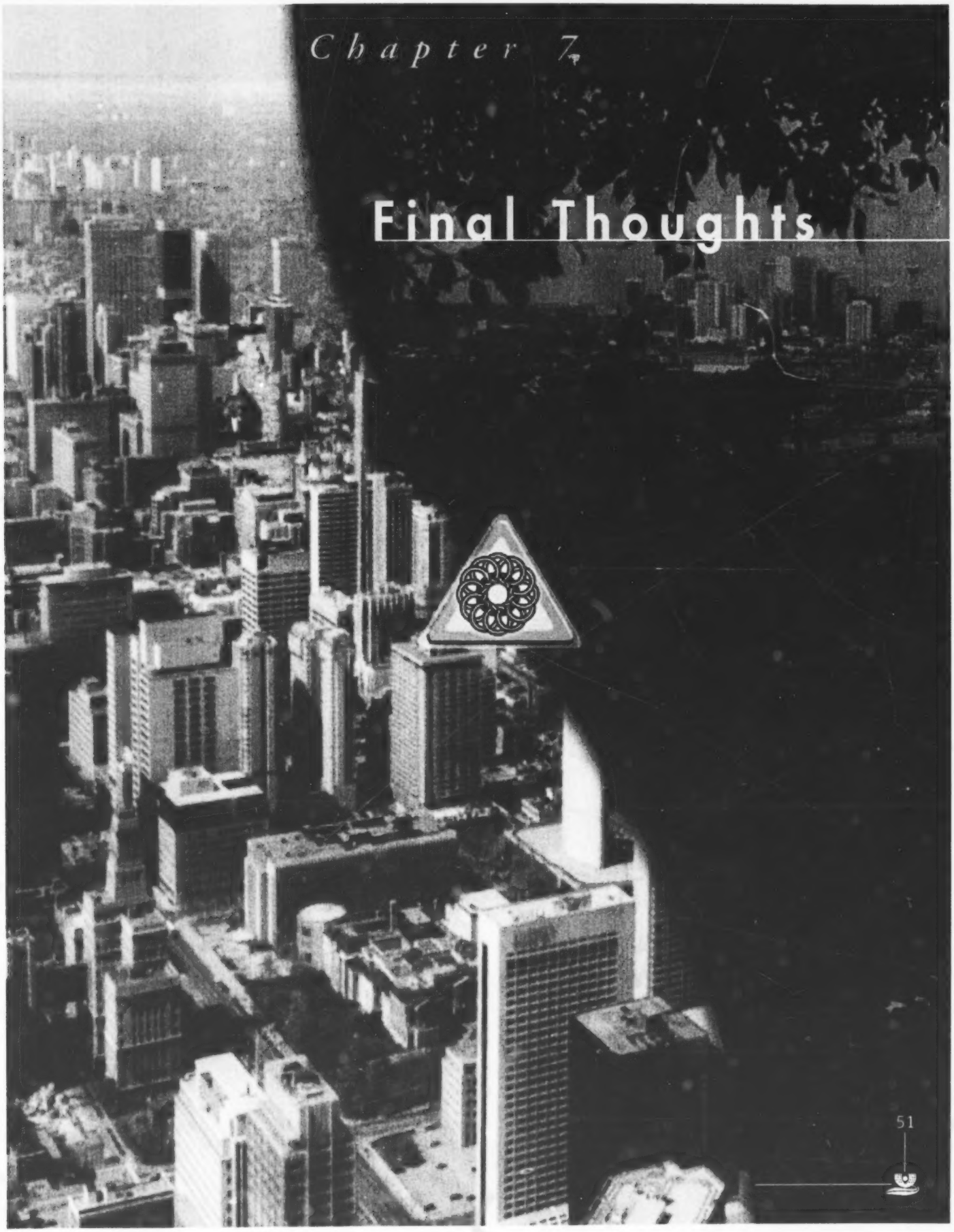
The Round Table heard considerable support for a mechanism or mechanisms to coordinate and advocate efforts across federal government departments and agencies to improve urban sustainability. There was also support for introducing a mechanism for working with provincial and local governments on urban sustainability. Precedents for multi-level coordination could be explored for their applicability. The Vancouver Agreement, for example, coordinates different federal departments and provincial and municipal agencies to improve conditions in Vancouver's Lower East Side. The Supporting Communities Partnership Initiative, with a focus on homelessness, is another example of multigovernmental coordination.[67] The potential role of existing coordinating mechanisms, such as the federal councils that coordinate multi-disciplinary federal programs on a regional basis, could also be explored.

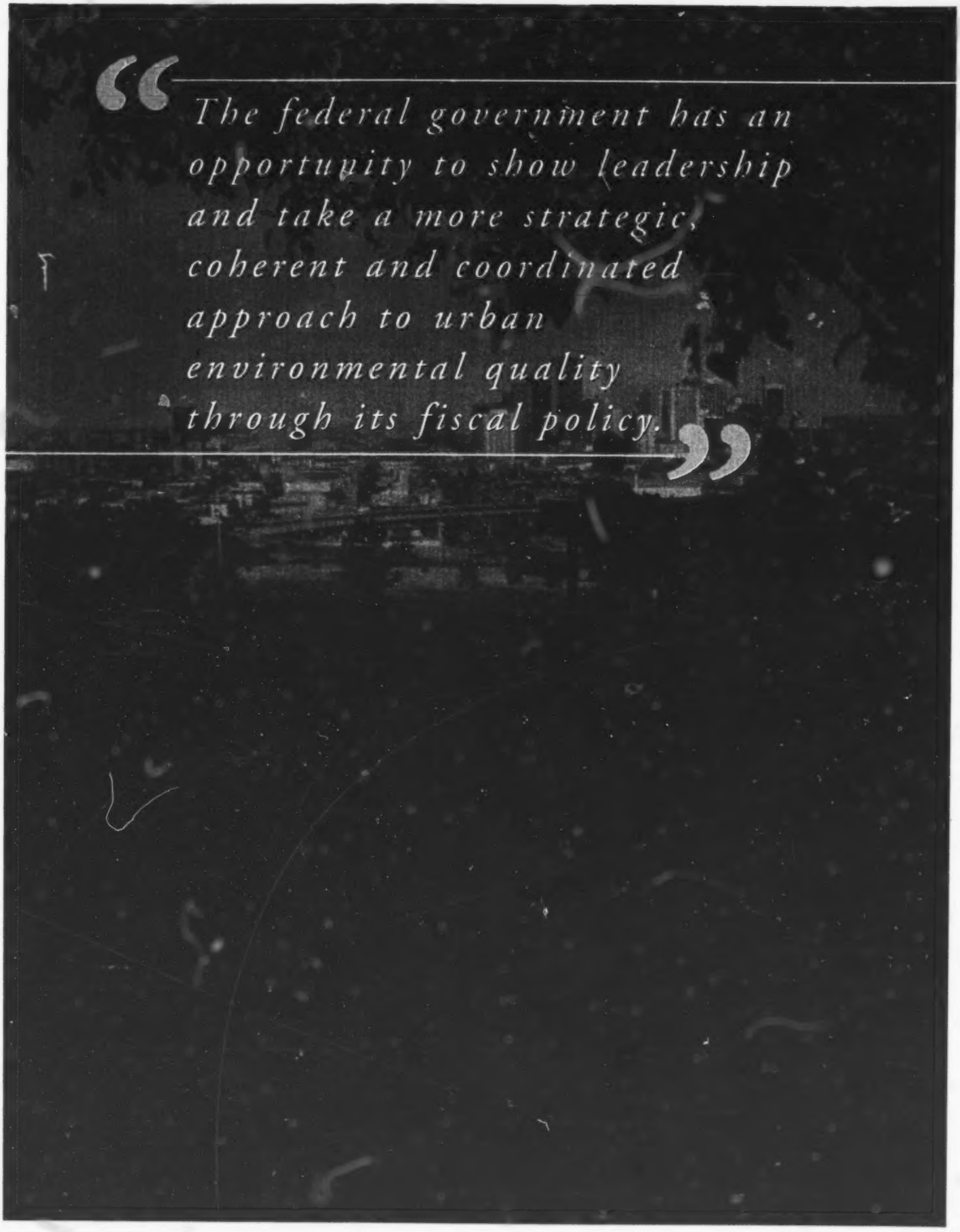
Recommendation 15: That the federal government investigate the usefulness of a mechanism or mechanisms for coordinating and advocating action to improve urban sustainability across federal departments and agencies.

Recommendation 16: That the federal government, after additional research, introduce a mechanism or mechanisms to promote better alignment among federal, provincial and municipal fiscal and other policies affecting urban sustainability.

Chapter 7

Final Thoughts



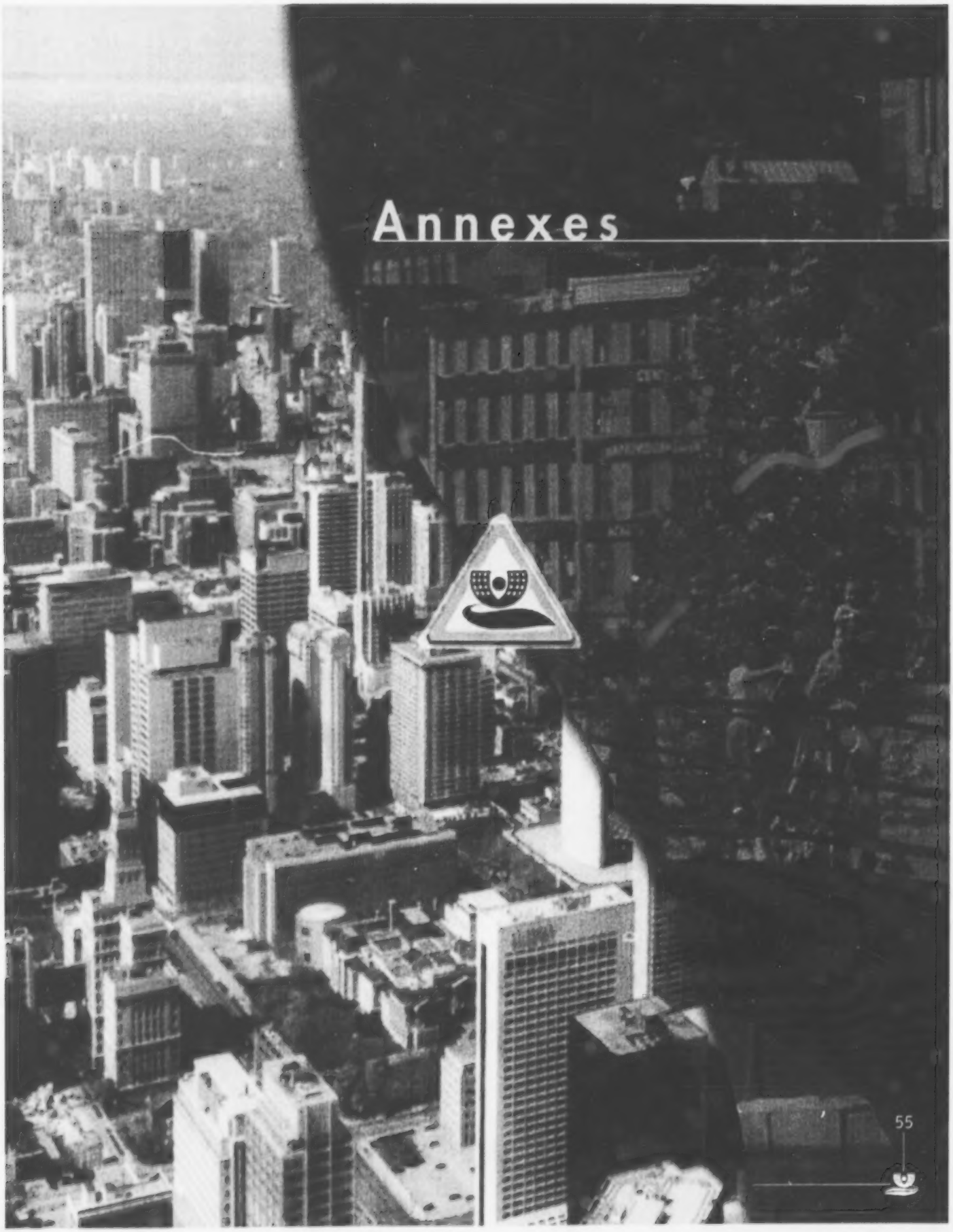

“The federal government has an opportunity to show leadership and take a more strategic, coherent and coordinated approach to urban environmental quality through its fiscal policy.”

This State of the Debate report has addressed the increasing urban environmental challenges facing Canadians, who continue to concentrate in cities. Meeting these challenges is critical to addressing climate change, encouraging innovation and trade, and maintaining the quality of life in Canada's urban centres and beyond.

ALTHOUGH the federal government already has a significant impact on urban sustainability, it lacks an urban focus or "lens." The federal government has an opportunity — even within its current envelope of constitutional responsibilities — to show leadership and take a more strategic, coherent and coordinated approach to urban environmental quality through a very powerful policy tool — fiscal policy. The NRTEE has identified some first steps the government can take in this area, as well as options that warrant additional exploration.

The Round Table hopes that this report sparks research, debate and concrete action on improving urban environmental quality, particularly through the use of federal fiscal policy.

Annexes



“The links between urban environmental quality and the economy are only starting to be recognized and understood.”

Annex A

Glossary

ACCELERATED CAPITAL COST ALLOWANCE

A capital cost allowance (CCA) is a tax deduction for business-related capital property that provides for the depreciation of these assets. Businesses can deduct up to a fixed percentage of the depreciated cost each year. There are approximately 40 CCA classes described in the regulations to the Income Tax Act. The CCA rate applicable to each class is usually intended to reflect the economic life of the assets of that class. Where the CCA rate is clearly in excess of that required to reflect the economic useful life, it can be considered to be an accelerated capital cost allowance.
(Department of Finance Canada, *Glossary*, www.fin.gc.ca/gloss/gloss-e.html)

[Français: déduction pour amortissement (DPA)
Déduction fiscale permise au titre des immobilisations d'entreprise, qui permet leur amortissement pour dépréciation. Les entreprises peuvent amortir leurs immobilisations jusqu'à concurrence d'un certain pourcentage chaque année. Il existe environ 40 catégories de DPA décrites dans le *Règlement de l'impôt sur le revenu*. Le taux de DPA s'appliquant à chaque catégorie tient habituellement compte de la vie utile des biens de la catégorie. Lorsque le taux de la DPA est nettement supérieur à celui nécessaire pour qu'il soit tenu compte de la vie utile du bien, on dit qu'il s'agit d'une DPA accélérée.
www.fin.gc.ca/gloss/gloss-d_f.html#dpa]

BROWNFIELD

An abandoned, vacant, derelict or underutilized commercial or industrial property where past actions have resulted in actual or perceived contamination and where there is an active potential for redevelopment. (NRTEE, *Cleaning up the Past, Building the Future: A National Brownfield Redevelopment Strategy*)

BUILDING DENSITY

The ratio of building floor area to lot area (higher numbers indicate higher densities).

CALGARY–EDMONTON CORRIDOR

The Calgary–Edmonton corridor encompasses some 100 municipalities along the stretch of land between Calgary and Edmonton in Alberta, although 72% of its population is concentrated in the two cities.
(adapted from Statistics Canada, *2001 Census*)

CO_2 EQUIVALENT

The amount of CO_2 that would cause the same effect as a given amount or mixture of other greenhouse gases. (Greening Government, *Glossary*, www.greeninggovernment.gc.ca/default.asp?lang=En&nav=08B72523-1#N)

COMMUNITY ENERGY SYSTEM

The collective management of energy needs within the community through a network approach.

EXTENDED GOLDEN HORSESHOE

The built-up area hugging the southernmost tip of Lake Ontario. With Toronto at its centre, the extended Golden Horseshoe extends to Barrie, Oshawa, Kitchener, Hamilton and the Niagara region.
(adapted from Statistics Canada, *2001 Census)*

FISCAL POLICY

Establishes the level and composition of government revenues and spending, and surpluses or deficits such as those incorporated into the fiscal plans presented in the annual budgets of both federal and provincial governments. Changes in fiscal policy can have impacts on the growth of the economy.
(Department of Finance Canada, *Glossary*, www.fin.gc.ca/gloss/gloss-e.html)

[Français: politique budgétaire

Établit le niveau ou la composition des recettes et des dépenses publiques, de même que les excédents ou les déficits, comme ceux figurant dans le plan financier présenté dans le budget annuel du gouvernement fédéral ou des provinces. La politique budgétaire peut influer sur la croissance de l'économie. www.fin.gc.ca/gloss/gloss-p_f.html#pol_bud]

GEOTHERMAL

Relating to or produced by the internal heat of the earth. (Oxford University Press, *Concise Oxford Dictionary*)

GREENFIELD

An undeveloped, unserviced property at the urban fringe.

GREENHOUSE GASES

Greenhouse gases(GHGs) are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), sulfur hexafluoride (SF6) and hydrofluorocarbons (HFCs). These gases together absorb the earth's radiation and warm the atmosphere. Some GHGs occur naturally but are also produced by human activities, particularly the burning of fossil fuels. When GHGs build up in the atmosphere, they have an impact on climate and weather patterns. They are usually measured in CO_2 equivalents. The United Nations says the GHGs mostly responsible for causing climate change are CO_2, CH_4 and N_2O. (NRTEE, *National Forum on Climate Change Glossary*, www.nrtee-trnee.ca/eng/programs/ArchivedPrograms/Climate_change/climatechange_glossary_e.htm)

KYOTO PROTOCOL

The international agreement emerging from the third meetings of the countries that have signed the Framework Convention on Climate Change, held in December 1997. Under the Kyoto Protocol to the United Nations Framework Convention on Climate Change, Canada agreed to cut greenhouse gases to 6% below 1990 levels, to be reached between 2008 and 2012. (adapted from NRTEE, *National Forum on Climate Change Glossary*, www.nrtee-trnee.ca/eng/programs/ArchivedPrograms/Climate_change/climatechange_glossary_e.htm)

LEGAL ACCESSORY UNIT

A self-contained apartment unit, usually created within a single-, semi-detached or townhouse, that conforms to all building code, zoning and other legal requirements.

NITROGEN OXIDES

Nitrogen oxides (NOx) are a group of gases released by fossil fuel combustion, forest fires, lightning and decaying vegetation. (Greening Government, *Glossary*, www.greeninggovernment.gc.ca/default.asp?lang=En&nav=08B72523-1#N)

PASSENGER-KILOMETRE

The transport of one passenger over a distance of one kilometre. (Office of Energy Efficiency, *Energy Use Glossary*, http://oee.nrcan.gc.ca/neud/dpa/data_e/glossary_e.cfm)

PERMEABLE AREA

An area with a surface that absorbs water, such as grass or gravel (as opposed to asphalt, roofs or concrete).

PRIMARY ENERGY USE

Represents the total requirements for all uses of energy, including energy used by the final consumer, non-energy uses, intermediate uses of energy, energy in transforming one energy form to another (e.g., coal to electricity), and energy used by suppliers in providing energy to the market (e.g., pipeline fuel). (Office of Energy Efficiency, *Energy Use Glossary*, http://oee.nrcan.gc.ca/neud/dpa/data_e/glossary_e.cfm)

R-2000 HOME

R-2000 homes are homes built to the R-2000 standard. The standard demands a high level of energy efficiency; approximately 40% above building code requirements. It is based on an energy consumption target for each house and a series of technical requirements for ventilation, air-tightness (to ensure less drafts), insulation, choice of materials, water use and other factors. (adapted from the Office of Energy Efficiency, R-2000 web site http://oee.nrcan.gc.ca/r-2000/english/about.cfm)

SPRAWL

Sprawl is characterized by low-density greenfields development; the separation of residential, work and shopping areas; lack of well-defined centres; and a road network consisting of very large blocks with limited points of entry into the blocks.

SUSTAINABLE DEVELOPMENT

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland Commission, *Our Common Future*)

TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) is a general term for strategies that result in more efficient use of transportation resources. There are many different TDM strategies with a variety of impacts. Some improve the transportation options available to consumers, while others provide an incentive to choose more efficient travel patterns. Some reduce the need for physical travel through mobility substitutes or more efficient land use. TDM strategies can change travel timing, route, destination or mode. TDM is an increasingly common response to transport problems. (Victoria Transport Policy Institute, *OnLine TDM Encyclopaedia*, www.vtpi.org/tdm/tdm12.htm)

URBAN FORM

The pattern of development in an urban area, including aspects such as urban density; the use of land (residential, commercial, industrial or institutional); the existence of denser "nodes," centres or corridors; and the degree to which urban development is contiguous or "scattered" at the edge.

VOLATILE ORGANIC COMPOUNDS

Volatile organic compounds (VOCs) are organic gases and vapours that are considered air pollutants. They come from sources including the burning of fuels, the use of paints and solvents, and drycleaning operations. (NRTEE, Covering the Environment: *A Handbook on Environmental Journalism*, www.nrtee-trnee.ca/publications/PDF/Covering-Environment-Journalism_E.PDF)

Annex B

Background Research Papers Prepared for the NRTEE

Amborski, David and Steven M. Webber (Ryerson Polytechnic University), "Ecological Fiscal Reform and Urban Sustainability: Case Study of the Ontario Provincial Government and Greater Toronto Area Municipalities," August 2002.

Blais, Pamela (Metropole Consultants), "Ecological Fiscal Reform and Sustainable Urban Growth: A research framework," (working draft) 13 March 2002.

Blais, Pamela (Metropole Consultants), "Urban Sustainability and Ecological Fiscal Reform: an Exploration of « High Priority » Measures, Draft Report Prepared for the Multi-Stakeholders' Workshop, Ottawa, September 26-27, 2002," [(working draft) necessary?] 19 September 2002.

Blais, Pamela (Metropole Consultants), "The Current State of Play and Possible New Fiscal Measures – A Summary of Fiscal Policies Influencing Urban Environmental Quality, and Possible New Measures: Draft for Discussion," [(working draft) necessary?] 30 May 2002.

Federation of Canadian Municipalities, "Early Warning: Will Canadian Cities Compete? A Comparative Overview of Municipal Government in Canada, the United States and Europe," May 2001.

Kitchen, Harry (Trent University), "Urban Livability Program and Local Ecological Fiscal Reform," (working draft) 27 July 2001.

Kitchen, Harry and Enid Slack (Trent University and Enid Slack Consulting Inc.), "Options for Fiscal Tools in Support of Urban Sustainability," (working draft) 25 October 2001.

Mintz, Jack and Nancy Olewiler (CD Howe Institute and Simon Fraser University), "NRTEE's Urban Livability Program: Issue Paper," (working draft) 24 July 2001.

Ogden, Meg (NRTEE), "NRTEE's Urban Livability Program: Initial Issue Identification Papers – Summary & Next Steps," (working draft) 2 August 2001.

Salsberg, Lisa (Consultant), "Ecological Fiscal Reform and Urban Sustainability: An Analysis of Federal Policies," August 2002.

Slack, Enid (Enid Slack Consulting Inc.), "Issue Identification for Urban Livability Program, National Round Table on the Environment and the Economy," (working draft) July 27 2001.

The Conference Board of Canada, "Cities, Competitiveness, and Environmental Quality: A Study Linking Environmental Quality and Competitiveness of Cities," July 2002.

Annex C

Summary of Measures Reviewed at Meetings of Experts

Note: Each checkmark indicates a potential relationship between the measure in the column on the left and the sustainability dimension in the top row. The strength of this relationship is variable and subjective. Small checkmarks indicate secondary or minor linkages.

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
High-priority Measures													
Transit, Land Use and District Energy Measures													
1. Eliminate GST on green municipal infrastructure									✓			✓	✓
2. Incentives for district energy systems						✓	✓						
3. Stable funding for transit	✓	✓	✓		✓	✓			✓			✓	
4. Capital gains tax changes to promote redevelopment of underutilized urban land	✓	✓	✓	✓	✓	✓		✓	✓			✓	
5. Framework for location-efficient mortgages	✓	✓	✓	✓	✓	✓		✓	✓			✓	
6. Equalize GST treatment of new and renovated housing	✓	✓	✓	✓				✓	✓			✓	

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
High-priority Measures													
Federal House in Order Measures													
7. Sustainability guidelines for siting and design of federal facilities	✓	✓	✓	✓	✓	✓		✓	✓			✓	
8. Sustainability practices for federal government operations	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓
9. Sustainability guidelines governing Canada Lands properties	✓	✓	✓	✓	✓	✓		✓	✓			✓	
Federal Infrastructure Spending													
10. Sustainability criteria to govern federal infrastructure program spending	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
11. Earmark share of funding for innovative sustainable community projects	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
12. Greater use of conditional funding	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Medium-term Measures													
Tax Measures													
1. Capital gains tax exemptions on land kept as farmland	✓	✓											
2. Make employer-provided parking a taxable benefit, and eliminate the taxation of transit passes					✓	✓			✓			✓	

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
Medium-term Measures													
3. Increase taxation on commercial parking, (e.g., an excise tax)	✓	✓	✓		✓	✓		✓	✓			✓	
4. Grant tax breaks on donations of inventory lands	✓	✓											
5. Restructure excise taxes on vehicles according to environmental impact						✓	✓		✓	✓			
6. Eliminate GST on hybrid vehicles						✓				✓			
7. Provide incentives to build and purchase energy-efficient homes and commercial buildings						✓							
8. Provide more incentives to consume renewable fuels instead of non-renewables fuel							✓						
Federal House in Order Measures													
9. Create an entity to coordinate federal sustainability initiatives and monitor spending criteria	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10. Implement a sustainability performance audit for all infrastructure spending	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
Other Measures													
11. Use actual sale price to calculate capital gains tax to allow "bargain sales" to land trusts	✓	✓											
12. Provide heritage preservation tax credits	✓	✓	✓	✓				✓	✓			✓	
13. Provide incentives for the use of information/ communications technology for transportation demand management					✓	✓		✓	✓			✓	
14. Provide incentives for developers/investors to move to sustainable buildings	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
15. Create a fund to educate developers and local planners	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
16. Increase spending on R&D for renewables and the use of information/ communications technology in transportation demand management					✓	✓	✓	✓	✓			✓	
17. Research/implement value pricing in relation to road and vehicle use (e.g., road and congestion pricing, pay-as-you-drive insurance, weight/distance for trucks, different excise tax for rail and trucks)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
Other Measures													
18. Restructure fuel taxes according to environmental impact	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
19. Tax credits for purchase of development rights for land conservation	✓	✓	✓	✓	✓	✓		✓	✓			✓	
20. Make projects compete for federal funds based on sustainability criteria	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
21. Improve infrastructure for multimodal freight transfer and provide incentives for the trucking industry to use it						✓					✓	✓	
22. Review national building code to support sustainability (e.g., mid-rise buildings)	✓	✓	✓		✓	✓		✓	✓			✓	
23. Encourage the creation of funds on the model of the Toronto Atmospheric Fund						✓	✓		✓	✓		✓	
24. Provide federal tax-exemption for bonds for green infrastructure					✓	✓	✓	✓	✓			✓	✓
25. Provide federal guarantees on green infrastructure projects (to allow triple-A bond ratings)					✓	✓	✓	✓	✓			✓	✓

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
Other Measures													
Tax Measures													
26. Introduce a federal tax on greenfields development	✓	✓	✓	✓	✓	✓		✓	✓			✓	
27. Shift taxation (GST, capital gains) of properties to focus on the land component	✓	✓	✓	✓	✓	✓		✓	✓			✓	
28. Place limits on capital gains exemption for primary residences	✓	✓	✓	✓	✓	✓		✓	✓			✓	
29. Implement tax breaks on new construction on previously urbanized lands	✓	✓	✓	✓	✓	✓		✓	✓			✓	
30. Broaden the scope of donated conservation lands subject to tax incentives	✓	✓											
31. Eliminate capital gains taxes on donations of ecologically sensitive lands to land trusts	✓	✓											
32. Reduce taxation on farm income, and remove $500,000 lifetime capital gains exemption for farms		✓											
33. High-density tax rebates	✓	✓	✓	✓	✓	✓		✓	✓			✓	
34. Provide tax incentives/credits for the renovation of vacant or underused buildings	✓	✓	✓	✓	✓	✓		✓	✓			✓	

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
Other Measures													
35. Implement a vacant land tax	✓	✓	✓	✓	✓	✓		✓	✓			✓	
36. Co-ordinate with other levels of government to provide tax-free/reduced tax reinvestment zones	✓	✓	✓	✓	✓	✓		✓	✓			✓	
37. Provide additional incentives for employers to purchase transit passes for their employees					✓	✓			✓			✓	
38. Empower municipalities to tax free parking spaces provided by employers	✓	✓	✓		✓	✓		✓	✓			✓	
39. Increase gas tax levels	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
40. Provide incentives for utilities to implement net metering (for electricity)							✓						
41. Provide incentives for utilities to convert from coal to natural gas							✓	✓					
Program Spending/Other													
42. Implement measures to create affordable first-time owners' housing in already-urbanized areas	✓	✓	✓	✓	✓	✓		✓	✓			✓	
43. Establish a federal fund for the acquisition of key lands or easements		✓											

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
Other Measures													
44. Link farm support policies to land use and long-term sustainability policies		✓											
45. Expand funding for community energy systems programs						✓	✓						
46. Replace federal purchases of harmful fuels with renewable and less-harmful fuels							✓						
47. No federal infrastructure program funding for roads, other than the Trans-Canada	✓	✓	✓	✓	✓	✓		✓	✓			✓	
48. Increase the amount of infrastructure funding for sewage treatment													✓
49. Expand Smart Communities program to other cities, focus on innovative information/ communications technology applications that support urban sustainability		✓	✓		✓	✓		✓	✓			✓	
50. Establish an urban component for the Climate Change Action Fund (CCAF), the Community Access Program, EcoAction and Green Municipal Enabling Funds	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
Other Measures													
51. Include a component on the quality of urban environments as part of the National Guide to Sustainable Municipal Infrastructure	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
52. Extend the life of the CCAF program	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
53. Initiate a fund to cover liability associated with innovative sustainable community projects	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Rental vs. Ownership													
54. Extend the Residential Rehabilitation Assistance Program to all urban areas	✓	✓	✓	✓	✓	✓		✓	✓			✓	
55. Allow the rollover of profits for investment in additional rental housing	✓	✓	✓	✓	✓	✓		✓	✓			✓	
56. Grant more favourable tax deductions for depreciation (e.g., CCA) and losses, allowing pooling across properties	✓	✓	✓	✓	✓	✓		✓	✓			✓	
57. Allow the deferral of tax on depreciation and capital gains on the sale of a rental property if another rental property is purchased	✓	✓	✓	✓	✓	✓		✓	✓			✓	

Note: All "rental versus ownership housing" measures were excluded in the June 4 meeting. It was felt that the link between the provision of rental housing and urban sustainability was not direct enough to pursue this issue. The measures originally included are listed above and continued pg. 72

MEASURE	Development on greenfield vs. urbanized land	Loss of agricultural and sensitive land at the fringe	Amount of land and buildings consumed (density)	New construction vs. rehabilitation of buildings	Parking (availability, land use)	Energy conservation and efficiency	Use of detrimental vs. benign energy	Travel demand	Use of autos vs. other modes	Use of more efficient vehicles	Use of trucks vs. rail	Traffic congestion	Treatment of sewage waste
Rental vs. Ownership													
58. Expand the list of allowable soft costs that can be deducted from the first year of operation in rental buildings	✓	✓	✓	✓	✓	✓		✓	✓			✓	
59. Change the treatment of GST on rent from GST-exempt to zero-rated so that GST credits can be claimed against expenses by building owners	✓	✓	✓	✓	✓	✓		✓	✓			✓	
60. Allow developers to pay GST gradually on rental construction as the units are occupied	✓	✓	✓	✓	✓	✓		✓	✓			✓	
61. Eliminate or lower the GST on the inputs of new rental construction	✓	✓	✓	✓	✓	✓		✓	✓			✓	
62. Change CMHC's mortgage underwriting and equity requirements to support the creation of new rental housing	✓	✓	✓	✓	✓	✓		✓	✓			✓	
63. Provide tax-exempt bonds for the construction of affordable/rental/dense housing	✓	✓	✓	✓	✓	✓		✓	✓			✓	
64. Provide tax shelters for investors in rental housing	✓	✓	✓	✓	✓	✓		✓	✓			✓	
65. Allow tax credits on investments in labour-sponsored funds directed at affordable housing	✓	✓	✓	✓	✓	✓		✓	✓			✓	

Annex D

List of Attendees at Experts Meetings

JUNE 4, 2002
TORONTO, ONTARIO

MICHAEL HARCOURT
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JULY 4, 2002

OTTAWA, ONTARIO

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KENT KIRKPATRICK
Chief Financial Officer
City of Ottawa

JOHN LIVEY
Chief Administrative Officer
Town of Markham

DAVID J. McGUINTY
President and CEO
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GEORGE MCLELLAN
Chief Administrative Officer
Halifax Regional Municipality

MICHAEL NOBREGA
Chief Executive Officer
Borealis Infrastructure Management Inc.

MEG OGDEN
Policy Advisor
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Environmental Specialist
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GORDON RUTH
Chief Financial Officer
Greater Vancouver Regional District

GAIL STEPHENS
Chief Administrative Officer
City of Winnipeg

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Annex E

List of Attendees at the Multistakeholders Workshop

SEPTEMBER 26-27, 2002
OTTAWA, ONTARIO

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MARK BOWLBY
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MIMI BRETON
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MARVIN MACDONALD
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DAVID MacISAAC
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Executive Director
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Annex F

Acknowledgements

The NRTEE extends its appreciation to the many individuals and organizations who provided their time and assistance to the Urban Sustainability Program. In particular, the NRTEE recognizes Pamela Blais of Metropole Consultants who worked closely with the Task Force throughout. She contributed invaluable expertise toward program planning and research, as well as the drafting of this State of the Debate report.

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